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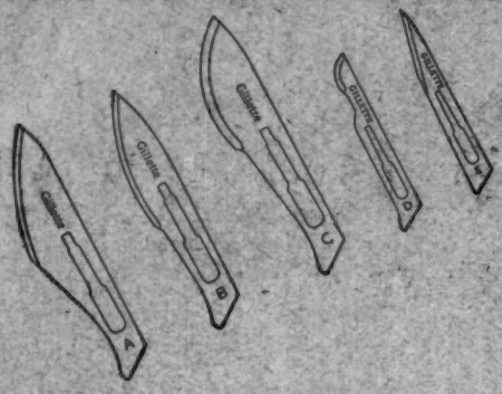

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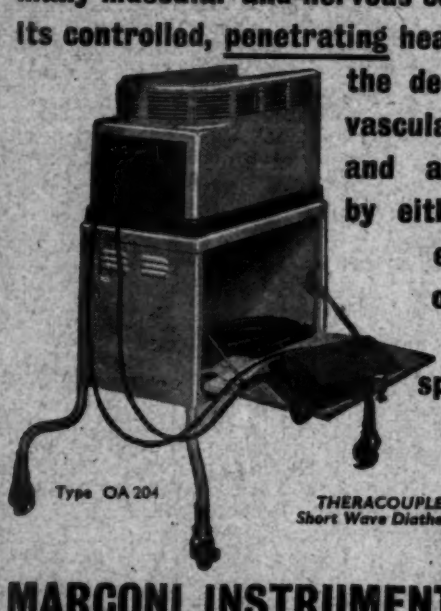

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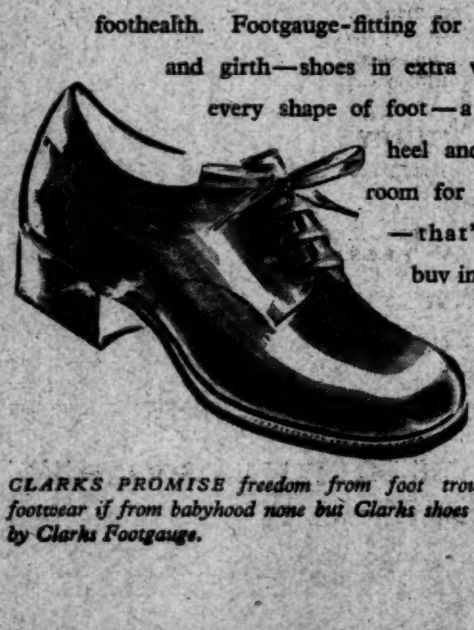

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 9 1948

SURGERY OF CONGENITAL HEART DISEASE*

BY

MAURICE CAMPBELL, M.D., F.R.C.P.

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The surgical treatment of some forms of congenital heart disease has raised many fresh questions of diagnosis and prognosis for the physician, as well as many problems for the surgeon. I shall deal with only some aspects of these.

Patent Ductus Arteriosus

The diagnosis of patent ductus is generally easy in the presence of the long continuous murmur through systole and diastole. The diagnosis may sometimes be made without these, but only after much experience; dilatation of the pulmonary artery, an increased pulse pressure at rest or after exercise, and a harsh systolic murmur will then be the main indications. In ordinary cases the two former are some guide to the amount of blood passing through the ductus. An adequate knowledge of the prognosis without operation is lacking, and we do not know with certainty whether the relative absence of cases over 40 is due to many deaths or to many cases closing spontaneously. A recent follow-up by Benn (1947) shows how few complications and symptoms arose in children over an eight-year period when the diagnosis was made at a routine school medical examination.

The first case of patent ductus arteriosus was ligated in 1939 by Gross, and experience has now been acquired in many centres. If there is no other congenital lesion the operation is entirely curative and the patient should be quite fit after it; the risks of infective endocarditis and of early heart failure should be entirely avoided. Surgical opinion is still divided between the question of ligature of the ductus and of resection with double ligature. The former is easier and should be the routine procedure, except in special circumstances, in spite of a small risk of recanalization.

The outlook is naturally different in the infected and non-infected cases. In the latter the mortality in skilled hands is low, perhaps 5%. In the infected cases the mortality is naturally higher, but even before the introduction of penicillin it was shown that surgical treatment was often an effective cure for such cases; the introduction of penicillin has made the risks in such cases much less. Many authorities recommend that in all cases in which the ductus has not closed spontaneously by the age of 7 an operation should be performed. Others, and I include myself among these, would limit it to those cases in which there is some enlargement of the heart, some striking fullness of the pulmonary artery, or some significant symptom.

The slightest degree of cyanosis or of right ventricular preponderance electrocardiographically should prevent a quick decision to operate, as the patent ductus may be an essential part of the circulation. After the age of 20 the risks of operation are rather greater, but the chance of successful operation should not be refused if the symptoms appear to be troublesome or progressive. If infective endocarditis is present when the patient is first seen it should be arrested with penicillin treatment, and generally operation should be advised later because of the risk of recurrence.

Coarctation of the Aorta

The diagnosis of coarctation of the aorta will continue to be missed if a collateral circulation is always expected to be self-evident. The femoral pulse should be felt for and the blood pressure taken in the legs in every case in which high blood pressure, basal systolic or diastolic murmurs, or undue pulsation in the neck is present without an obvious cause. A high pressure in the arms and a low poor femoral pulse or the demonstration of a collateral circulation are pathognomonic of coarctation of the aorta. They are more important than notching of the ribs, not only because *x*-ray films are not always available but because the signs are present at an earlier age.

The collateral circulation can be more easily demonstrated or made more obvious if the patient stoops forward with his arms hanging down vertically while his back is examined in a good light. This is because the greatly dilated subclavian artery is compressed between the clavicle and the first rib and bending forward opens up this space and so releases the pressure on the subclavian artery.

We know more about the prognosis of coarctation. The average age at death is about 30. Two groups can be distinguished: those with symptoms before adult life, who will probably not live beyond 30; and those in whom the lesion is found by chance in adult life, the outlook being very much better. Most patients die from cardiovascular causes—heart failure, endocarditis, or a ruptured aorta—but one in ten may die from the rupture of a congenital cerebral aneurysm.

In October, 1944, Crafoord successfully resected a case of coarctation with an end-to-end suture of the aorta. In his first series (up to July, 1947) the results were entirely satisfactory in 20 and two patients died; in three patients after a thoracotomy no operation was possible and two of these died. In these 20 patients the blood pressure in the upper part of the body fell to or near to normal, the pressure in the legs rose, and the circulation was greatly improved as shown by oscillometric records. Some parts of the visible collateral circulation disappeared quickly and the patients felt better and were able to do much more.

It may be some time before the general operative risk can be assessed, but Crafoord's mortality of 16% and experience at other centres would justify a reasonable risk in those patients in whom the outlook seems unfavourable, considering the greatly improved expectation of life. The

*Read in opening a discussion in the Section of Diseases of the Chest at the Annual Meeting of the British Medical Association, Cambridge, 1948.

only sense in which the operation is not a complete cure is that bicuspid aortic valve or congenital cerebral aneurysms may be present. A fall of blood pressure to normal will greatly reduce the risks from the latter, but we cannot be sure that it will remove it entirely.

Atheroma develops in the aorta at a younger age in patients with coarctation; this adds to the risk of operation after the age of 20 or 25 years and is one of the reasons favouring early operation.

Cyanotic Congenital Heart Disease

Here the problems are much more difficult both for the physician and for the surgeon. Until recent years nothing could be done for these patients and they lingered on with increasing incapacity, some reaching a very limited adult life, but many died in infancy and more during childhood. Two centuries ago the association of cyanosis with pulmonary stenosis and with ventricular septal defect was recognized and there has been much discussion about their relative importance. It was Dr. Taussig's recognition of the inadequate flow of blood to the lungs as the fundamental cause of the disability that led to the idea of a successful operation, although the right-to-left shunt of venous blood actually produced the cyanosis.

Diagnosis

In early infancy many malformations of the heart may be responsible for gross cyanosis, but the more serious are not long compatible with life. As the children get older fewer forms of congenital disease are found with any frequency and this makes an attempt at diagnosis possible. Cyanosis from birth generally represents a right-to-left shunt either though a ventricular septal defect or because there is an overriding aorta that takes the blood from the right ventricle or, in an extreme case, where the aorta, being transposed, takes all its blood from the right ventricle.

The fundamental requisite for success of the Blalock–Taussig operation is that the cyanosis and disability should be mainly due to an inadequate blood-flow to the lungs, and when pulmonary stenosis is added to these other findings, as it is in Fallot's tetralogy, the operation is most certain to be successful.

Fallot's tetralogy consists of pulmonary stenosis (which may be valvular or infundibular), ventricular septal defect, an overriding aorta (that has often been called dextroposition), and right ventricular hypertrophy. The condition was very fully and accurately described by Peacock in 1858—20 years before Fallot's paper—and had been recognized earlier than this. These three abnormalities occurring together without pulmonary stenosis are known as Eisenmenger's complex. Pulmonary stenosis may also occur alone, but then there is generally no cyanosis from birth. Its later development probably depends on a septal defect which may be small and no more than a foramen ovale where the valve preventing a flow from left to right is overcome by the increased pressure on the right side so that there is a flow from right to left.

The majority of children with cyanosis from birth and clubbing of the fingers have Fallot's tetralogy, and often where the *x*-ray picture is characteristic this can be diagnosed with confidence. The main features are persistent cyanosis from infancy, with polycythaemia, clubbing of the fingers, and severe disability on walking. On radioscopy the heart, which may be sabot-shaped in half the cases, shows little enlargement generally but some enlargement of the right ventricle; there is no undue prominence of the pulmonary arc and no visible pulsation in the pulmonary branches. Most of them have a systolic murmur in the pulmonary area, often with a slight thrill. The pulmonary second sound is never much increased and is often diminished. A diastolic murmur indicates some complication. Most of them have right ventricular preponderance in the electrocardiogram, with a large pointed P II. All are of normal mental development unless there are other causes for abnormality; most are underweight but of normal height. Squatting is noted in four-fifths of the patients, and panting after exertion is nearly as characteristic.

Although the diagnosis may be easy there are difficult borderline cases: the critical decision clinically is whether the pulmonary blood-flow as seen on radioscopy is diminished or not. Often it is easy to decide that this is diminished, as there is a hollow pulmonary bay and the lung fields look clear. In other cases (most familiar in the adult picture of auricular septal defect) it is obvious that the pulmonary arteries are dilated with increased pulsation. Difficulties are caused by the cases in which beyond the pulmonary stenosis there is some dilatation of the pulmonary arteries and in which a good collateral circulation produces increased density in the lung fields.

Fallot's tetralogy is the commonest finding among children who are obviously blue, but as one sees an increasing proportion of less cyanosed children there are more with other lesions and with a radiological picture similar to adult auricular septal defect. This defect alone cannot be the cause, because, the pressure being higher on the left than on the right, there is no cyanosis except perhaps terminally. Whether there are exceptions to this statement is one of the problems that remain to be solved, but more likely there is also transposition of the main vessels as well (Taussig, 1947). In Eisenmenger's complex also the pressure in the pulmonary artery is high, the blood-flow to the lungs is unimpeded, and operation will not help. In difficult cases great help may be obtained by the circulation times, cardiac catheterization, and by angiocardiography.

If the oxygen content of the blood in the right auricle is considerably higher than that in the superior vena cava there must be an auricular septal defect with a left-to-right shunt (a right-to-left shunt would not of course show by this method, though a catheter might pass through the septal defect). If the pressure is raised in the right ventricle and suddenly falls greatly as the catheter passes into the pulmonary artery, there is pulmonary stenosis, but it is not always easy to get the catheter into the pulmonary artery. A high pressure in the pulmonary artery often indicates Eisenmenger's complex, though it may occur in other conditions. A very high pressure on the right side, approximating to that in the aorta, suggests a septal defect with an overriding aorta and free communication between the two. Detailed calculations may often be made about the size of the blood-flow through the different circuits and shunts; while these are of great interest they are hardly reliable enough to be conclusive.

In angiocardiography quick filling of the left ventricle and of the aorta and its branches indicates a septal defect with a right-to-left shunt. Slow filling of the pulmonary arteries after the right ventricle has been visualized indicates pulmonary stenosis. In many cases other interesting details are observed, though considerable skill and experience is needed in the interpretation of the pictures. From such a simple investigation as the circulation times one may be certain of the presence of a large right-to-left shunt if the arm–tongue time is the same as or shorter than the arm–lung time.

Prognosis

There are few follow-ups of these children to give an accurate prognosis. If one may take the age incidence of a recent series as an indication, it is very unfavourable. In my first 137 patients (77 males and 60 females) with cyanotic

congenital heart disease there were almost equal numbers in each year up to 7, three-fifths of this number in each year from 8 to 11, and one-fifth of this number in each year from 12 to 22, after which there were only scattered cases. The figures suggest that those surviving infancy have no great risks until they reach the age of 7, though clinical experience hardly bears this out. After 7 the chances of surviving become less, and increasingly so after the age of 12.

If these figures can be taken as giving a true cross-section they mean that only one patient in ten reaches the age of 24 and only two in ten the age of 12. Many parents have been told that their children will not live to 7 or to 14 or to 21, and there seems some rough truth in these three round numbers as representing periods of increasing danger beyond which survival becomes less likely. During the last few months there have been some deaths after operation, but there have been many more among the other patients I have seen. These considerations seem ample justification for advising operation in spite of the relatively high mortality. The incapacity of many of these cases is hardly realized. A few may lead a reasonable but very quiet life, but if they are old enough to express their views they are generally the greatest enthusiasts for operation, even when the risks are put before them. Many, however, exist rather than live and are a handicap to their parents as well as to themselves, especially when they begin to realize what other children are able to do.

Operative Treatment

Following Taussig's suggestion about the importance of overcoming pulmonary stenosis, Blalock's experimental work on animals convinced him that a subclavian-pulmonary anastomosis was a feasible method, and in October, 1944, Blalock and Taussig introduced their operation for the relief of the inadequate blood-flow to the lungs in Fallot's tetralogy and related lesions.

The operation is essentially an anastomosis between a systemic artery and the pulmonary artery, most commonly an end-to-side subclavian-pulmonary anastomosis, though under special circumstances the innominate or carotid artery may be used or the anastomosis may be end-to-end. In one-quarter of these cases the aortic arch will be right-sided instead of curving back as usual to the left and this will of course change the position of the innominate artery. The operation should be performed on the side opposite to the aortic arch because this gives a greater choice of systemic vessels that can be used and the subclavian artery can generally be turned down to the pulmonary artery with a less acute angle.

In infants the small size of the vessels produces a surgical problem of the greatest difficulty, and the operation is much more dangerous and sometimes less lasting in its good effect because the anastomosis is too small as the child grows larger. For this reason the operation should never be performed before the age of 3, except as a life-saving emergency, and generally not till 5. From 5 to 10 is perhaps the ideal age, but there seem no special difficulties in older children, though the difficulties and risks are greater in those over 20—a group that should not trouble our successors, as suitable cases should have been operated on earlier. The direct division of the stenosed pulmonary valve by Brock (1948) has opened up fresh possibilities. The late results of this and the indications for it remain to be worked out.

Results of Operation

The operation is not of course curative in the same way as in the other two groups because the underlying abnormality remains, but the improvement may be so great that the child appears normal to the parents. The immediate upset caused by the operation is less than might be expected, and intravenous fluid is often not required; when it is used only small amounts are needed. Many have a pleural effusion that often needs aspiration, but generally only once; other complications are not common. Of the first 38 cases operated on at Guy's Hospital 6 died, 7 could not have an anastomosis done or did not benefit much, and the remaining 25 were enormously improved almost at once, and this has been maintained.

The immediate results of the operation are excellent, and the improvement seems to be maintained over the period of two to three years for which it has been possible to follow up Blalock's patients. The colour becomes nearly normal except sometimes for slight cyanosis on a cold day or after vigorous exercise, and the patients' capacity is greatly improved so that they can walk some miles and get about normally all day. The polycythaemia disappears quickly, the clubbing of the fingers more slowly. The arm on the side of the divided subclavian artery gives no trouble.

The heart enlarges a little as might be expected from the increased work, but generally only slightly. Sometimes at the beginning the increase during the first few weeks made me feel that any such progressive increase would soon end in disaster, but I have seen no cases in which the increase has continued after the first month or two, and I understand that in the longer American experience this is a rare occurrence, though relapses in those operated on too young and a few instances of congestive heart failure have been seen.

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LARGE-INTESTINE COLIC DUE TO SYMPATHETIC DEPRIVATION

A NEW CLINICAL SYNDROME

BY

Sir HENEAGE OGILVIE, K.B.E., M.Ch., F.R.C.S.

Surgeon to Guy's Hospital

The subtitle of this note is intentionally provocative. Two cases are described, presenting essentially similar features. In each case the symptoms so strongly suggested obstruction of the distal colon by a carcinoma that laparotomy was eventually undertaken in spite of normal findings in a barium enema. In each case the operation disclosed a normal colon and extensive and entirely unsuspected malignant disease involving the region of the crura of the diaphragm and the coeliac axis and semilunar ganglia.

Whether such a syndrome has been described before I am unaware, but I have not encountered it apart from these two cases, nor have any of my friends whom I have consulted on the subject, and a search of the journals over the last ten years and of the literature of hypertension has failed to reveal similar observations.

Case 1

In 1944 a physician aged about 66, on the staff of an E.M.S. hospital, began to lose weight, and complained of increasing constipation. He was found to be diabetic, and was treated with diet and insulin. The diabetes was controlled, but the constipation persisted, and he began to have colicky pains in the hypogastrium. On several occasions waves of peristalsis,

apparently in the pelvic colon, were seen during attacks of colic. A barium meal, and later a barium enema, failed to show any abnormality. The symptoms increased in severity, and after two months the barium enema was repeated; it revealed a dilated and apparently atonic colon, but no localized deformity or obstruction. The attacks of colic continued and he lost weight progressively, so that in spite of the absence of any positive findings a laparotomy was advised.

At operation free fluid was found in the abdomen. The colon was normal throughout. There was a malignant nodule in the peritoneum behind the umbilicus, and a malignant mass on the left crus of the diaphragm, which might have originated in the adrenal, the tail of the pancreas, or the upper pole of the left kidney. The infiltration spread across the region of the aortic opening, and there were metastases in the liver. The nodule in the peritoneum was excised and sent for section, and later was reported to be typical of a secondary deposit of carcinoma of the pancreas.

The patient died three months after operation. No necropsy was performed.

Case 2

In February, 1948, a solicitor aged 58, who had been perfectly well all his life except for an operation for appendicitis with general peritonitis at the age of 17, and attacks of dysentery during the first world war, began to suffer from attacks of generalized colicky abdominal pain, accompanied by constipation and relieved by passing wind. Between the attacks, which came on several times a day, he felt well.

On April 1 he was seen by Dr. Geoffrey Evans, who has kindly placed at my disposal the notes he made at the time. The patient told him that the attack had started suddenly six weeks previously with pain in the abdomen, wind, and constipation, and he attributed it to worry and an injudicious feast of whisky and gooseberries. Up to this time his digestion had been good, and his bowels had acted regularly without laxatives. After the pain started he took a series of aperients and purgatives, which either failed to act or produced a loose motion only. A provisional diagnosis of intestinal obstruction was made, and the patient was referred to Dr. Norman Henderson for a barium enema. Some early diverticulosis of the left colon was reported, but no filling defect. The differential diagnosis of enterospasm was considered, but was rejected because of the obvious distension of the lower part of the abdomen and because bowel function had been normal up to the onset of the illness. There had been some weight loss (about a stone: 6.35 kg.), but this might have been explained by reduced food intake and disturbed sleep due to the pain.

He returned to his home in the country, but the attacks continued, and one which occurred a week later was so severe that it seemed to indicate a commencing obstruction. He was admitted at once to a nursing-home for observation, when I saw him for the first time. He was then having bouts of pain three or four times a day. Each started suddenly, with violent hypogastric colicky pain, which made him writhe about and grip the bedclothes. His pulse rose to 100, but his temperature was unaltered. He did not vomit. During the attack he was tender in the left iliac fossa, and what appeared to be a distended loop of colon could be felt to the right of the tender spot. The attack lasted from half to one hour. When it was over he was happy; he had no pain, and his abdomen was soft and free from tenderness.

The differential diagnosis between enterospasm and obstruction was again discussed with Dr. Geoffrey Evans, who remained in charge of the case. The patient was of the highly strung type, in whom enterospasm is to be expected. On the other hand, lower abdominal distension, which is not seen in enterospasm, was an obvious feature, and he had never experienced similar pain previously. Sigmoidoscopy and analysis of the faeces showed no abnormality. No formed stool was passed in spite of a variety of daily enemata, atropine by injection, magnesia and belladonna, and paraffin oil ½ oz. (57 ml.) daily. After a week I wrote to his doctor: "I feel we shall be driven to laparotomy, but I feel still more certain that we shall find nothing visibly or palpably wrong. However, he cannot go home as he is, and we will therefore have to operate if we cannot cure him in some other way." The attacks got worse and more frequent.

At operation ten days after his admission to the home no free fluid was found, and the pelvic colon appeared normal except for a temporary ring of spasm—an unusual sight under general anaesthesia. In the subdiaphragmatic region masses of malignant tissue were encountered. All the upper aortic glands, those round the coeliac axis, and those in the lesser omentum were large and hard, there were large hard nodules in both lobes of the liver, and the falciform ligament and the peritoneum on each side of it were infiltrated. No indication of the site of the primary tumour could be discovered.

The falciform ligament was removed for section and reported on as follows: "The specimen shows the remains of a gland containing considerable secondary deposits of a carcinoma composed of compact groups of small elongated cells with darkly staining nuclei and some abnormal mitoses and without alveolar arrangement. The general appearance somewhat suggests origin in a bronchial carcinoma, possibly of oat-cell type, but the character is very difficult to define more clearly." Another pathologist reported: "I think this is clearly a secondary deposit in connective tissue of an adenocarcinoma, with a tendency to spheroidal change. It would do extraordinarily well for a bronchial neoplasm." A third pathologist considered that the appearance suggested a tumour arising in the adrenal.

The patient died two weeks later. No necropsy was performed.

Discussion

The symptoms and signs of colonic obstruction in these two cases, occurring in the absence of any organic disease of the colon itself, can be explained in three ways. (1) That the tumour stimulated the parasympathetic supply to the colon. (2) That the tumour cells produced some substance stimulating peristalsis. (3) That the subdiaphragmatic growth had interrupted the sympathetic supply to the large intestine, so that the parasympathetic innervation, which in the distal colon comes from the second and third sacral nerves, was allowed to act unopposed. Of these three explanations the third alone is probable. Infiltration of a motor-nerve bundle should not produce overaction of the muscles it supplies, nor should any kind of mechanical stimulation of nerve fibres in their courses produce repeated overaction: further, in these instances the neurones of the caudal sympathetic system, which supply the section of the bowel involved, were far removed from any abnormal environment. Tumours secreting parasympatheticomimetic substances are, so far as I know, unknown; in any case, the response in these two patients was a local and not a general parasympathetic one.

That the removal of the sympathetic innervation to the colon should lead to excessive and possibly incoordinated contraction of the muscle coats is not improbable. Bilateral ablation of the lumbar sympathetic chain has in a number of instances led to considerable and permanent diminution in the diameter of the bowel in congenital megacolon. Temporary paralysis of the sympathetic system by a spinal analgesic leads to contraction of that part of the alimentary canal supplied by the vagi. Injection of drugs that act on the neuromuscular junction of the parasympathetic system—prostigmin and acetylcholine—causes contraction, often excessive and painful, of the muscular coats of the small and large intestines.

In the two cases under discussion the malignant infiltration surrounded, and may well have put out of action or even destroyed, the splanchnic nerves, the semilunar ganglia, and the coeliac plexus. The vagi passed through the same invaded area, and were equally liable to interruption—a fact that fits in with the observation that only that part of the bowel supplied by the caudal parasympathetic system gave clinical evidence of the overaction. There is no unanimity among anatomists about where the watershed between the vagal and the sacral supply lies, but it is usually presumed to correspond roughly to the junction between

the parts of the colon developed from the midgut and hindgut loops—that is, about the distal fourth of the transverse colon.

The most cogent objection to the view that these two cases represent parasympathetic overaction due to sympathetic deprivation is that in each case the contractions were painful. Pain fibres from the small and large intestines reach the cord, so far as we know, by way of the splanchnic nerves. Bentley and Smithwick (1940) showed that the appreciation of pain in the small intestine is abolished after bilateral splanchnicectomy, and Ray and Neill (1947) showed the same in the large intestine. The operation of splanchnicectomy has not, so far as I know, ever been followed by muscular overaction in the bowel.

We thus have two objections to the explanation of sympathetic deprivation put forward to account for the clinical syndrome here discussed—that surgical interruption of the sympathetic nerves at the same site does not produce this effect, and that it does abolish pain, which in these cases was not abolished.

Three suggestions may be made to account for this discrepancy. First, that the interruption of nerve fibres by malignant infiltration may be selective, picking out the motor fibres before the sensory ones. We know that in pressure lesions (tourniquet paralysis and obstetric paralysis) and traction lesions (brachial plexus injuries) involving nerve trunks motor power may be lost with little or no sensory disturbance. In this particular instance the motor fibres (at any rate, the post-ganglionic ones in the plexus) are non-medullated, while the sensory ones are medullated; and this chemical and histological difference may be accompanied by a differential resistance to infiltration.

Secondly, that the sensory and motor fibres may not run together in all individuals as they do in the majority. One fact that is appearing as the result of the great increase in operations on the sympathetic system is the astonishing and unpredictable course of the sympathetic pathways, particularly at the thoraco-abdominal junction. Boyd (1948) has shown that it is impossible, by the most complete ablation of all known sympathetic nerves and ganglia, to produce functional denervation of the sweat glands in the D/2 and L1 areas.

Thirdly, that painful sensations, blocked in their normal pathways, may find others. The motor cortex orders movements, and when the muscles or nerves that normally subserve those movements are destroyed will often accomplish the same movements by some other mechanism. The sensory cortex awaits messages, and if the orthodox routes are out of action will often receive them by underground channels. The pain of angina pectoris ceases after bilateral resection of the first four thoracic ganglia, but it comes back eventually. The pain of hip disease is cured for a time by antero-lateral cord section, but the relief is only temporary.

I should like to express my gratitude to Professor F. H. Bentley, Professor Michael Boyd, Sir Stanford Cade, Dr. Geoffrey Evans, Professor F. A. Knott, Professor G. A. G. Mitchell, Professor A. H. T. Robb-Smith, Sir Charles Symonds, and Mr. A. G. M. Weddell (the order is alphabetical), with whom I have discussed these cases.

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The "Directory of Psychiatric Out-patient Facilities for Adults and Children in England and Wales" may be obtained for 1s. (11s. a dozen) from the National Association for Mental Health, Maurice Craig House, 39, Queen Anne Street, London, W.1.

SOME CAUSES OF SLIGHT CARDIAC ENLARGEMENT

BY

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In routine radiological examination cardiac enlargement without physical signs of valvular disease or hypertension is sometimes seen. Among 2,500 recruits examined this problem arose in 25 men, and an attempt has been made to find the cause of the enlargement in 16 of these who were followed up and re-examined three to six years later. Two further cases seen after the original series (Parkinson and Hartley, 1946) are added.

Method

Opinions differ as to the best method of determining whether true enlargement is present. Hodges and Eyster (1926), Ungerleider and Gubner (1942), and Sherman and Ducey (1944) prefer exact cardiac mensuration. On the other hand, Bedford and Treadgold (1931) say that screen examination is a more reliable means of recognizing heart disease than is actual measurement by orthodiagram. Comeau and White (1942) find prediction tables the best approach to the problem, but both agree that the important factor in estimating heart size is the impression gained by a reliable and experienced radiologist. Parkinson (1936) thought that cardiometry was too complicated for routine clinical use, and that as sound an opinion could be given from screen examination without measurements.

In the type of case discussed measurements are of little use, as they usually fall between the minimum and maximum limits of normal. Careful radioscopy in the three routine positions by more than one experienced observer is more accurate in arriving at a conclusion, and this was the method here adopted. In every case the second examination was made without reference to the previous report. Table I shows the possible causes of radiological enlargement without physical signs of valvular disease or hypertension.

Table I.—*Showing Possible Causes of Radiological Cardiac Enlargement in the Absence of Physical Signs of Valvular Disease or Hypertension*

1. Physiological.—Childhood, athleticism, bradycardia, and pregnancy.

2. Apparent.—Scoliosis, depressed sternum, and raised diaphragm.

3. Familial cardiomegaly and congenital idiopathic hypertrophy. Friedreich's ataxia.

4. Organic heart disease.—V.D.H. before the development of murmurs, congenital heart disease, repeated coronary thrombosis, cardiac aneurysm, and antecedent hypertension.

5. Abnormal rhythm.—Complete heart-block, paroxysmal tachycardia with failure, auricular fibrillation, and bundle-branch block.

6. Arteriovenous aneurysms and Paget's disease of bone.

7. Metabolic, endocrine, and blood disease.—Anaemia, thyrotoxicosis, myxoedema, and beriberi.

Other rarer causes are anomalous coronary arteries, Fiedler's myocarditis, amyloid disease, Gaucher's disease, Von Gierke's disease, and acromegaly.

Among the 18 cases were examples falling into the first four groups only. Table II shows the final conclusion reached.

TABLE II.—*Showing the Final Diagnosis made in 18 Cases of Cardiac Enlargement in the Absence of Physical Signs of Valvular Disease or Hypertension*

Case No.	Final Diagnosis
1	Bradycardia and depressed sternum
2	" and scoliosis
3	" and depressed sternum
4	" and scoliosis
5	Scoliosis
6	"
7	Full-sized heart. Aorta more prominent than normal
8	" " " " "
9	" " Right-axis deviation
10	" " " "
11	Familial cardiomegaly " "
12	Probable early mitral stenosis
13	Aortic incompetence (rheumatic)
14	" " (")
15	" " (")
16	" " (")
17	" " (")
18	Probable aortic incompetence (rheumatic)

Apparent Cardiac Enlargement

It is well known that scoliosis of minor degree, depressed sternum, or a raised diaphragm may cause apparent radiological enlargement. Although scoliosis or depressed sternum was recognized as a contributory cause in four men at the first examination, the heart in all was still considered to be larger than normal. Reconsideration at the second examination showed that all four had, in addition, a bradycardia.

Case 1.—Aged 40. First examination, October, 1941:—B.P. 130/85. The mitral first sound was loud and there was a moderate apical systolic murmur. Radiologically the left ventricle was suspected of being too large. *Second examination,* May, 1947:—Pulse rate 60. There was a minor degree of depressed sternum. The apical first sound was loud and a moderate apical systolic murmur was present. *Diagnosis:* the heart was now considered to be within normal limits in view of the bradycardia and minor depression of the sternum.

Case 2.—Aged 39. First examination, July, 1941:—B.P. 150/85. Apical and pulmonary short but loud systolic murmurs. Electro-cardiogram: R_1 small and slurred, T_2 diphasic. Full-sized heart on radioscopy. *Second examination,* May, 1947:—Slight depression of the sternum. Short soft apical and pulmonary systolic murmurs. Pulse 60. Electrocardiogram unchanged. Radioscopy: full-sized heart. Slight displacement by scoliosis. *Diagnosis:* bradycardia and scoliosis.

(Note.—A diphasic T_2 was found among healthy young aircrew in the 1939–45 war (Stewart and Manning, 1944; Wood *et al.*, 1941.)

Case 3.—Aged 18. *First examination,* February, 1943:—Positive rheumatic history. B.P. 120/80. The pulmonary second sound was loud. Radioscopy showed slight enlargement, and early aortic incompetence was suspected. *Second examination,* April, 1947:—Short soft apical systolic murmur. Clear third heart sound. Electrocardiogram normal. Depressed sternum, minor degree. Radioscopy: full-sized heart; normal size in both oblique positions. *Diagnosis:* bradycardia and depressed sternum cause the appearance of full size.

Case 4.—Aged 20. *First examination,* May, 1943.—B.P. 140/70. Apex beat external to the nipple line and too forcible. Radioscopy: probably slight enlargement, but heart lies to the left. Possibly early aortic incompetence. *Second examination,* March, 1947:—Apex beat beyond the mid-clavicular line. Short soft apical systolic murmur. Pulse rate 60. Radioscopy: full-sized heart. Deep breathing shows it to be of normal size. *Diagnosis:* bradycardia and scoliosis cause the appearance of enlargement.

In Cases 5 and 6 a second examination showed scoliosis alone as the cause of the apparent enlargement. These show that a second examination will sometimes correct the previous view that more enlargement is present than can be accounted for by displacement.

Case 5.—Aged 17. *First examination,* February, 1944:—B.P. 130/75. Apex beat forcible. Short minimal systolic murmur at apex and on left of sternum. Electrocardiogram normal. Radioscopy: probably slight enlargement. *Second examination,* April, 1947:—Short soft apical systolic murmur. Pulmonary second sound duplicated. Electrocardiogram normal. Full-sized heart, but right border is made up of spine. When the scoliosis is corrected by a 5-degree turn to the right the heart is normal in shape and size. *Diagnosis:* scoliosis.

Case 6.—Aged 19. *First examination,* September, 1941:—Positive history of rheumatic fever. B.P. 130/80. Apex beat in nipple line. Pulmonary second sound loud. Electrocardiogram normal. Radioscopy showed probable slight enlargement of the left ventricle, in addition to displacement by scoliosis. Possibly early aortic incompetence. *Second examination,* May, 1947:—Apex beat in mid-clavicular line, not forcible. Pulmonary second sound loud. Electrocardiogram normal. *Diagnosis:* radioscopy—scoliosis causes the appearance of enlargement.

Prominent Aorta

The interest in Cases 7 and 8 lies in the fact that even at the second examination cardiac enlargement was thought to be present. The radioscopic reports in each case are almost identical at both examinations. Yet if heart disease were present some progress over five years might have been expected. At the second examination, knowing the previous findings, it is justifiable to call both hearts normal, but if such a man is seen for the first time serious doubt would still arise. In both cases the ascending aorta was considered at each examination to be too prominent for the age of the patient. It is possible that the vascular pedicle in youth may be wider on occasion than the generally accepted normal.

Case 7.—Aged 19. *First examination,* October, 1941:—B.P. 155/90. Apex beat forcible and displaced. Electrocardiogram normal. Radioscopy: the heart lies slightly to the left. Possibly left ventricular enlargement. *Second examination,* May, 1947:—B.P. 140/70. Apex beat beyond the mid-clavicular line and too forcible. Short pulmonary systolic murmur. Electrocardiogram normal. Radioscopy showed a full-sized heart, with a vascular pedicle which is wide for his age. Ascending aorta prominent. Left ventricle possibly slightly enlarged. Oblique positions within normal limits. *Diagnosis:* probably no heart disease present.

Case 8.—Aged 21. *First examination,* December, 1942:—B.P. 130/80. Apex beat slightly forcible. Long piping apical systolic murmur, heard also in the aortic area. Electrocardiogram: left axis deviation. Radioscopy: heart full-sized, possibly slight enlargement. Possibly early aortic stenosis. *Second examination,* May, 1947:—Apex beat forcible. Short but noticeable apical piping systolic murmur. Electrocardiogram: left axis deviation. Radioscopy: heart full-sized only. Aorta too prominent for his age. *Diagnosis:* this may be a normal heart, but it is not certain even now.

Right Axis Deviation

Cases 9 and 10 are in many ways similar to Cases 7 and 8, but in these there is right axis deviation in the electrocardiogram. That it is unusual to find this at the age of 20 is true, but among 299 normal students studied by Wood *et al.* (1941) it was present in four. Slight widening of the QRS complex often occurs in normal youths, as has been shown by Graybiel *et al.* (1944) and by Stewart and Manning (1944). Graybiel *et al.* found QRS complexes as long as 0.13 second in normal aviators. Stewart and Manning found prolongation only in leads II and III. Five years after the original examination there was no change in Cases 9 and 10, and the presumption is that they have normal hearts.

Case 9.—Aged 19. *First examination,* November, 1942:—B.P. 130/75. Apical and pulmonary soft systolic murmurs. Electrocardiogram: right axis deviation. Radioscopy: slight but definite enlargement of heart. Possibly cogenital heart disease. *Second examination,* May, 1947:—Apex beat beyond the mid-clavicular line. Not forcible. Soft apical systolic

murmur. Electrocardiogram: right axis deviation. Radioscopy: full-sized heart only. *Diagnosis:* no heart disease present.

Case 10.—Aged 20. *First examination,* December, 1942:—B.P. 155/90. Apex beat forcible. Electrocardiogram: right axis deviation with slight widening of the QRS complex, T_1 large. Radioscopy showed slight enlargement of the heart. *Second examination,* April, 1947:—Apex beat beyond the mid-clavicular line and forcible. Electrocardiogram unchanged. Radioscopy: heart appears enlarged, but turning 5 degrees to the right partially corrects it, and a deep breath then makes the size almost normal. There is some scoliosis, but in spite of this there seems to be more enlargement than can be accounted for by this and the high diaphragm. The size of the left ventricle raises suspicion, but the electrocardiogram shows right axis deviation. *Diagnosis:* no heart disease present.

Familial Cardiomegaly

William Evans (1948) has recently described cardiomegaly occurring as a familial condition, and Case 11 in my series proved to be a member of the family described by him.

Case 11.—Aged 18. *First examination,* June, 1944:—B.P. 130/60. Frequent extrasystoles. Apex beat in the sixth space, displaced and too forcible. Radioscopy showed moderate to great enlargement, chiefly of the left ventricle. Unfortunately, an electrocardiogram was not taken, as at that date work in London was carried on under difficulties. *Second examination,* June, 1947:—Auricular fibrillation. Electrocardiogram showed a grossly abnormal QRST complex. Radioscopy revealed moderate to great enlargement. The patient's brother had recently died in the London Hospital from heart failure due to the same condition. *Diagnosis:* familial cardiomegaly.

Mitral Stenosis

The diagnosis of valvular heart disease is seldom made in the absence of the typical murmur. In mitral stenosis enlargement can appear before a presystolic murmur, and sometimes even before an apical systolic murmur is heard. The latter was seen in five men out of 264 with mitral valvular lesions (Parkinson and Hartley, 1946). Case 12 was thought to be an early example of mitral stenosis, though it is not proved.

Case 12.—Aged 19. *First examination,* November, 1942:—B.P. 155/80. Apex beat external to the nipple line. Short systolic murmur in all areas, loudest in the pulmonary area. Radioscopy showed slight general enlargement. Possibly congenital, possibly acquired heart disease. *Second examination,* May, 1947:—Apex beat forcible and in mid-clavicular line. Apical first sound loud and sudden. Pulmonary second sound duplicated. Soft systolic murmur in all areas. Electrocardiogram: sino-auricular block with ventricular escape. Radioscopy: very doubtful enlargement with convex left border, possibly due to a combination of scoliosis and low diaphragm. In the right oblique position, with barium in the oesophagus, the left auricle is probably enlarged and also the pulmonary artery. In the left oblique position the left auricular enlargement is not so convincing. *Diagnosis:* probably early mitral stenosis.

This case raises the question of the diagnosis of early mitral stenosis as discussed by Parkinson and Hartley (1946). If this is mitral stenosis it is of great interest that such little deterioration has occurred in a period of nearly five years. The loud first sound and the probable left auricular enlargement make the diagnosis most likely.

Aortic Incompetence (Rheumatic)

On the other hand, the suggestion is not usually made that the enlargement of aortic incompetence may appear before an aortic diastolic murmur is audible under normal conditions. In Cases 13, 14, 15, 16, and 17 of this series a tentative diagnosis of possible aortic incompetence (rheumatic) was made at the first examination, based on the radioscopic findings only, although at that time examination included a special but futile search for an aortic diastolic murmur, in all positions and at different pulse rates. On second examination in each case a clear aortic diastolic murmur was heard.

Case 13.—Aged 41. *First examination,* November, 1942:—History of chorea. B.P. 130/80. Apical first sound split. Pulmonary second sound loud. Electrocardiogram normal. Radioscopy: slight to moderate enlargement of the left ventricle. Probably aortic incompetence. *Second examination,* May, 1947:—Pulse shows auricular fibrillation. An aortic diastolic murmur is heard. Radioscopy: general enlargement, with left ventricular enlargement and a prominent ascending aorta. Slight scoliosis with a low diaphragm tended to mask the radiological findings in this case. *Diagnosis:* aortic incompetence (rheumatic).

Case 14.—Aged 21. *First examination,* July, 1944:—No history of rheumatic fever or chorea. B.P. 140/85. Depressed sternum and variable apical systolic murmur. Radioscopy: enlargement as well as displacement by the depressed sternum. *Second examination,* May, 1947:—Cup-like depression of the sternum. Apex beat well beyond the nipple line. Aortic diastolic murmur on the left of the sternum. Electrocardiogram shows right axis deviation. Radioscopy: considerable general enlargement. In spite of the depressed sternum the heart was thought to be too large. The left ventricle was slightly enlarged and the pulmonary artery was also slightly large. In view of the right axis deviation the question was raised whether the murmur could indicate pulmonary incompetence: the pulmonary artery was not large enough for this to be so. *Diagnosis:* aortic incompetence (rheumatic).

Case 15.—Aged 18. *First examination,* May, 1943:—B.P. 140/80. Apex beat forcible, a short apical systolic murmur. Radioscopy: left ventricle slightly enlarged. *Second examination,* April, 1947:—Slight depression of the sternum. Apex beat forcible and beyond the nipple line. Aortic second sound loud and an aortic diastolic murmur is present. Electrocardiogram: left axis deviation. Radioscopy: moderate general enlargement, left ventricle enlarged, and ascending aorta prominent. *Diagnosis:* aortic incompetence (rheumatic). It is possible that the diastolic murmur was obscured by the loud aortic second sound at the original examination.

Case 16.—Aged 18. Seen December, 1942. No rheumatic history. B.P. 115/70. Short apical systolic murmur only. Radioscopy: probably slight general enlargement. Possibly aortic incompetence. Later, in 1943, a diastolic murmur was recorded. *Diagnosis:* aortic incompetence (rheumatic).

Case 17.—Aged 18. Seen February, 1943. No rheumatic history. B.P. 120/75. Apex beat in nipple line and too forcible. Radioscopy showed left ventricle enlarged. *Diagnosis:* Possibly aortic incompetence. A letter from Sir John Conybeare, dated July, 1943, when this patient was in the R.A.F., confirmed that there was no diastolic murmur present, although one was audible in November, 1943. *Diagnosis:* aortic incompetence (rheumatic).

Case 18.—Aged 19. *First examination,* January, 1943:—B.P. 140/75. Apical and basal short systolic murmur. Radioscopy: slight general enlargement, with undue pulsation of the aorta. *Second examination,* April, 1947:—Apex beat beyond the mid-clavicular line and too forcible. Third sound well heard. Short soft pulmonary systolic murmur. Electrocardiogram normal. Radioscopy: slight general enlargement, left ventricle large, and ascending aorta prominent. Although repeated auscultation failed to show an aortic diastolic murmur, it seems probable from the radiological examination that he has aortic incompetence.

Cases 13, 14, 15, 16, and 17 show that enlargement may precede a constant diastolic murmur in cases of aortic incompetence. It is probable that phonocardiography would have helped in earlier diagnosis. It is not suggested that aortic incompetence should ever be diagnosed in the absence of the typical murmur but rather that such appearances as have been described should lead to repeated careful

auscultation until the diagnosis is certain. These 18 men illustrate difficulties in the assessment and exact diagnosis of doubtful enlargement.

Discussion

Cardiac hypertrophy of unknown cause has been discussed by Levy and Von Glahn (1937), who give the credit for the first descriptions to Josserand and Gallavardin in 1901. The former authors describe 10 cases in patients aged 29 to 66. Arrhythmias were common. All the electrocardiograms were abnormal. Norris and Pote (1946) discuss four men, aged 21 to 30, who died of unexplained hypertrophy and dilatation of the heart, and all had abnormal electrocardiograms. The clinical features of this condition appear to be rapid progress of symptoms to failure and death, often with embolic phenomena, in a patient with a grossly large heart and an abnormal electrocardiogram. It might be asked whether our first 10 cases should not be included in this idiopathic group, but their symptoms, signs, electrocardiograms, and course would seem to exclude this.

The part played by antecedent hypertension in cases of cardiac enlargement of unknown aetiology has been considered by Kaplan *et al.* (1938). Evidence based on microscopical examination is given that previous hypertension played a part in 18 cases out of 45 with such enlargement. They suggest that coronary sclerosis, auricular fibrillation, chronic anaemia, and hyperthyroidism may play a part. Willius (1939) says that it is undesirable to assume the pre-existence of hypertension in any enlarged heart in the absence of collateral physical signs of hypertension. Palmer (1937) showed that coronary sclerosis may cause slight enlargement of the heart. Smith and Bartels (1931) considered coronary thrombosis to be the probable cause of cardiac hypertrophy in two men, aged 35 and 36, seen at necropsy.

Summary

An account is given of the follow-up examination of 18 men three to six years after they had shown cardiac enlargement without signs of valvular disease or hypertension. The method used was physical examination and radioscopy in the three routine positions.

The causes of cardiac enlargement without signs of valvular disease or hypertension are listed, and the relative value of mensuration and experienced radiological examination in assessing cardiac enlargement is considered.

In 10 cases the enlargement was found to be apparent only. In four of these displacement with bradycardia was present: two showed only scoliosis; while in the remaining four the heart was radiologically full-sized—two had an aorta more prominent than is usually considered normal in youth, and two had right axis deviation.

In eight cases the enlargement was confirmed—one proved to be a case of familial cardiomegaly, which is discussed in detail; one was considered to be probable early mitral stenosis; five (over 25% of the total cases) had developed an aortic diastolic murmur and were confirmed as cases of aortic incompetence in which cardiac enlargement had preceded the diastolic murmur; and one case with similar radiological appearances was thought most probably to have aortic incompetence, although no diastolic murmur was heard.

Ultimate diagnosis in the majority of such cases depends on re-examination at a later date.

My thanks are due to Sir John Parkinson for his practical aid and advice in the execution of this follow-up.

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CONGENITAL HEART DISEASE SIMULATING FOETAL DISTRESS

A REPORT OF TWO CASES

BY

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Congenital heart disease is comparatively rare: according to Price (1937) it is found in about 2% of all patients suffering from organic morbus cordis. Still rarer is it for congenital heart disease to reveal itself *in utero*. The following two cases are of interest in that marked slowness of the foetal heart accompanying congenital heart disease closely simulated foetal distress.

Case 1

A primigravida at term, aged 21, was seen at a routine visit in the antenatal clinic on July 4, 1947. The fundus uteri was at term, the position right occipito-anterior, and the head engaged. The foetal heart could be heard beating quite strongly, but it was markedly slow, the rate varying from 72 to 108, and its rhythm was irregular; the patient did not appear to be in labour. A vaginal examination was made, and the cervix was found to be taken up, but there was no dilatation and no cord was palpable. A diagnosis was made of a probable cord complication—either a loop of cord round the foetal neck or body or a true knot in the cord.

The patient was admitted to hospital from the clinic, and artificial rupture of the membranes with a Drew-Smythe catheter was performed shortly after admission. A 15-minute chart of the foetal heart rate was kept. Labour began at 8 p.m. on July 4, the cervix was fully dilated at 2.30 a.m. on July 5, and a normal delivery of a live female infant, weighing 6 lb. 7 oz. (2.9 kg.), took place at 3.15 a.m. The infant cried well at birth and was a good colour. During labour the foetal heart rate ranged between 60 and 110, but it did not vary with the pains, although the rhythm throughout was irregular.

At birth the infant's heart rate was 120, but three hours later it had slowed to 80; on each occasion the rhythm was regular. No meconium was passed during labour, and the placenta looked healthy. Cord complications were absent. On examination of the infant shortly after birth there was no cyanosis; the heart rate was 86, and no murmurs were heard.

On July 10 a loud harsh systolic murmur could be heard all over the praecordium, its maximum intensity being beneath the sternum. An electrocardiogram was physiological for an infant of this age, and there was no heart block or arrhythmia.

The infant was seen by the paediatrician in the out-patient department one month later. The heart rate was 136 with a regular rhythm. The systolic murmur was still present; there was no change in its quality, intensity, or propagation, which are characteristic of uncomplicated interventricular septal defect (maladie de Roger). The child appeared healthy and was being breast-fed four-hourly; she had had no cyanotic attacks.

I saw the child on Sept. 2. She was then very well, and her weight was 8 lb. 5 oz. (3.8 kg.). She had had no cyanotic attacks.

A skiagram of the chest was taken, and the radiologist reported as follows : "The heart shadow is normal for a patient of this age. Lung fields clear."

The mother had not had any illnesses during the first three months of her pregnancy.

Case 2

A primigravida at term, aged 38, was seen at a routine visit in the antenatal clinic on Aug. 1, 1947. The fundus uteri was at term, the position left occipito-lateral, and the head engaged. The foetal heart could be heard beating strongly at a rate of 44, and it was regular. The maternal pulse rate was 96, and was also regular.

The patient was admitted to hospital, and artificial rupture of the membranes was performed with a Drew-Smythe catheter shortly after admission. Vaginal examination revealed that the cervix was not taken up ; the external os was closed, but it was easily stretched to admit one finger ; there was no cord palpable.

A 15-minute chart of the foetal heart rate was kept. Labour began at 7 p.m. on Aug. 1, and the cervix was fully dilated at 11.45 p.m. A normal delivery of a live female infant, weighing 8 lb. 5 oz. (3.8 kg.), took place at 1 a.m. on the 2nd. The infant was a good colour at birth, and cried lustily after the air passages had been cleared of mucus. The foetal heart rate varied between 44 and 52 during labour ; the rhythm was regular throughout both the first and the second stages of labour, and it was unaffected either by the pains or the descent of the foetal head on to the pelvic floor.

At birth the infant's heart rate was 40, and the rhythm was regular ; no murmurs were heard. No meconium was passed during labour and the placenta seemed healthy ; there was no cord complication. The infant was breast-fed four-hourly, and appeared to be perfectly healthy. On Aug. 4 a loud harsh systolic murmur was heard all over the praecordium. The senior physician, Dr. Barnes, examined the child on Aug. 7, and reported as follows : "Healthy looking infant. No cyanosis. The heart appears enlarged to the left. Apex beat in the fourth left intercostal space in the anterior axillary line. Heart rate slow at 41, but regular : there is a harsh systolic murmur audible all over the praecordium, with its maximum intensity beneath the centre of the sternum."

An electrocardiogram showed complete heart-block ; the ventricular rate was 41, and the auricular rate 130 ; both had regular rhythm. A skiagram of the chest was taken on Aug. 13, and the radiologist reported as follows : "Heart contours normal in this projection. Lung fields clear."

A diagnosis of interventricular septal defect with congenital complete heart-block was made. The infant was seen by the paediatrician in the out-patient department one month later. The heart rate was 42 with regular rhythm ; the systolic murmur was still present ; there was no change in its quality, intensity, or propagation. The child appeared healthy and was being breast-fed four-hourly ; she had had no cyanotic attacks.

I saw the child on Sept. 16. She was being breast-fed three-hourly, each feed being complemented with "ostermilk." She had had no cyanotic attacks and her weight was 9 lb. 12 oz. (4.4 kg.). The heart rate was 40 with regular rhythm. A second skiagram of the chest was taken, and the radiologist reported as follows : "Cardiac outline within normal limits for the age of the child."

The mother's electrocardiogram revealed no abnormality. She had had no illnesses during the first three months of her pregnancy.

Commentary

In Case 1 the irregularity of the foetal heart, together with a rate below 100, strongly suggested foetal distress, and a cord complication was considered the most likely cause. A caesarean section was seriously contemplated as the mode of treatment, but, in view of the patient's age and the fact that the duration of the foetal distress was unknown, it was decided that an immediate surgical induction should be done, and a 15-minute chart of the foetal heart rate was kept. I am quite unable to account for the behaviour of this foetal heart before delivery, for the presence of an interventricular septal defect without conduction disturbance should not lead to cardiac arrhythmia.

Case 2 is even more instructive, because congenital heart disease was suspected when the foetal bradycardia was discovered in the antenatal clinic (Case 1 having been seen exactly one month previously). In this case the foetal heart was regular and easily audible—quite unlike foetal distress, where irregularity and muffled heart sounds are common characteristics.

Over 100 cases of congenital heart-block have been recorded. The diagnosis, however, is seldom made antenatally, and the case now reported brings the total number of cases diagnosed antenatally to 10. A summary of the main features of these cases, in all of which the diagnosis was confirmed by electrocardiograms, is given in the accompanying table.

Author	Sex	Slowest Foetal Heart Rate	Slowest Rate after Birth	Time of Antenatal Diagnosis	Duration of Life	Remarks
Yater, 1929 ..	M	47	47	2 weeks	18 days	Marked cyanosis. Necropsy revealed multiple congenital anomalies
Witt, 1934 ..	M	44	44	2 months	75 days	Infant died in a cyanotic attack. Necropsy revealed coarctation of aorta
Heubner, 1938	No record	80	60	Not given	Alive at 11 months and healthy	Block disappeared at this age
Ottow, 1939 ..	F	32	52	24 hours	Alive at 5 months and healthy	Block still present at 5 months
Geiger and Hines, 1940	F	58	60	17 ,,	Alive at 5 months and healthy	Block still present at 5 months
Thomson, 1943	M	60	52	7 ,,	1 year	Died of Stokes-Adams seizure. Necropsy revealed no interventricular defect
,, ,,	F	45	68	4½ weeks	Alive at 4 years and healthy	Block still present at 4 years
Hammond, Stone, and Hyams, 1944	F	40	40	1 month	Alive at 7 months and healthy	Infant delivered by a lower segment caesarean section shortly after onset of labour because of slow foetal heart
Plant and Steven, 1945	M	50	50	5 weeks	6 days	Died in a cyanotic attack. Necropsy revealed no gross structural defect, but histological examination failed to show subendocardial fibres which could be identified as Purkinje fibres
Sankey, 1947	F	44	40	9 hours	Alive at 7 weeks and healthy	Block still present at 7 weeks

My thanks are due to Dr. Barnes and Dr. Finlay for their kind help and advice. I am also indebted to Dr. Maddocks for the *x*-ray reports, and to Dr. Morgan and the Medical Director, Dr. W. Arklay Steel, for permission to publish these cases.

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Postscript.—Since writing this article it has come to my knowledge that the infant with congenital complete heart-block suddenly collapsed at home at the age of 4 months and died within 24 hours. The cause of death appeared to be bronchopneumonia, but a post-mortem examination was not allowed.

SOME ASPECTS OF MORBIDITY SURVEYS

BY

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Morbidity surveys must be included among newer applications of the social sciences. The contribution made to human welfare by the social sciences is exemplified by such pioneer work as that of Simon and Chadwick on the sanitary conditions of the working classes, of Booth and Bowley on the extent and causes of poverty, and of Cathcart and Orr on the prevalence of undernutrition. Social investigations have had an influential effect on public and official opinion and have been the direct or indirect cause of social planning and legislation over a wide field. The data obtainable from morbidity surveys may well be equally influential in regard to the health services of the nation.

Health and Sickness.—Before reviewing the various aspects of morbidity surveys, it is worth while to consider the definition of sickness or morbidity and its relationship with health, on which opinions differ. Downes and Collins (1940) say, "Illness, as normally understood, is an affection or disturbance of health," but Stocks (1947) holds that "in the definition of sickness the mystical word health, about whose meaning nobody seems to be agreed, must be avoided." But if sickness cannot be defined simply as a departure from health, or "an affection or disturbance of health," the implication is that there is some third state, such as being off-colour, intermediary between health and sickness. It can be argued that sickness should no more be limited to objective physical conditions than undernutrition, for example, to marked deficiency states. At least for most practical purposes it is sufficient to accept a simple definition like that of Downes and Collins, no matter what may be taken as the definition of health. The important aspect is not the definition but a clear and precise description of the information presented in any survey.

Types of Morbidity Surveys

The sickness data in morbidity surveys are obtained either from doctors or from lay persons. Some matters affecting clinical and lay diagnosis are considered below.

Clinical Diagnosis

Many factors influence the completeness of a clinical diagnosis. Muench (1947) puts the matter succinctly: "If we stop to think we must realize that medical diagnosis is definitely stratified into many areas of reliability." Methods of treatment also vary between doctors. Thus in the inquiry into epidemics in schools (Medical Research Council, 1938) ringworm was at first reported only if involving loss of school time; treatment, however, varied so much that eventually cases were reported whether school time was lost or not. Different standards of normality may be adopted—a criticism which has, for instance, been levelled against the clinical assessment of nutrition. All such factors introduce the possibility of non-random bias.

The clinical information on national health insurance certificates has important limitations. It is often vague and indefinite, may relate only to a sign or a symptom, the underlying condition being omitted, and to an early diagnosis. Bradford Hill (1937) reports 313 cases in which the first diagnoses were gastritis or gastro-enteritis but of which only three-quarters would, on the final diagnosis, have remained in the gastric group. Stocks (1947), indeed, emphasizes the advantage of information obtained from lay persons who know the course of the sickness as a whole compared with data based on early diagnoses. Difficulty of classification arises when two or more causes are given for a single condition. In any case, many minor conditions causing only a day or two's absence from work are not certified.

If in a survey it is intended to obtain sickness data clinically diagnosed, not only must the possibility of non-random bias be considered, but also whether diagnoses could satisfactorily be made by an unselected sample of doctors or a group of doctors trained to work to the same standards, or only by one doctor.

Information Provided by Lay Persons

In some sickness surveys the sickness data are provided by lay persons, usually housewives, in respect of themselves or other members of their family, these data including both diagnoses by doctors and sickness for which no medical opinion has been sought. Such a procedure is beset with difficulties.

Lack of Knowledge.—(*a*) In an examination of 1,592 workers, all under national health insurance, Morris (1941) found that 112 had major disorders, and of these only 12 were or had been recently under medical care. Of 252 who had varicose veins, classified as a minor condition, only 7 had ever consulted their doctor about them. For the most part, the major and minor disorders were neglected or unsuspected. The same sort of thing was found at the Peckham Health Centre. Hence in sickness surveys many real ailments remain unreported. (*b*) Knowledge of sickness depends on such factors as the extent to which medical advice has been sought and the previous experience of sickness, either personally or in others. These depend, for example, on whether the patient has been accustomed to seek medical advice and on the sickness history of the informant's family. (*c*) Informants in different social groups or different states of health have different standards of normal health, and will report only deviations from these standards.

Psychological.—(*a*) Some "make the most" of sickness, supposed or real; others are proud of their "good health" and reluctantly report sickness. (*b*) Some conditions will not be freely reported because of social stigma. (*c*) The self-assessment of health will be influenced by propaganda and the state of morale.

Effect of Memory.—(*a*) The longer the previous period about which information is required the less its completeness and accuracy (Sydenstricker, 1926; Downes and Collins, 1940; Stocks, 1947). Stocks suggests that this relates only to minor ailments, but he also suggests that something more than a time factor influences loss of accuracy—for example, the more free reporting during an influenza epidemic and the less free when it is passed. (*b*) The faculty of recalling events probably depends on the intelligence of the informant, which in turn varies with factors such as social class.

Reporting in Respect of Another Person

This assumes unrestricted confidence between the informant and those for whom she is reporting, and that the informant will equally remember their sickness experience. But she may take a special interest in some persons and not in others. Mothers of large families are likely to forget more than mothers of small families.

These factors are very likely to cause bias when associating sickness data with environmental data. Thus a woman of lowly social standing with chronic heart disease may be unaccustomed to consulting a doctor and may be unaware of the nature of her condition; a person in better circumstances may do so and thus be aware of it. A mentally subnormal mother of a large family will forget the ailments of her children, while a mother who voluntarily limits her family will remember the ailments more completely. The mother of a small family or one with adequate domestic help will more readily go to bed if ill than one with a large family, tied to her household duties. This point is well made by Spring Rice (1939), who says: "She [the working class wife] firmly believes that her home and family would collapse if her work was interrupted by a sojourn at a hospital or even by the necessity of lying down or resting in bed for a few hours a day, and she therefore refuses to admit that she is ill until these disastrous interruptions to her work can no longer be avoided."

The following two items illustrate how spurious relationships may result by correlating biased data, although it is not suggested that the results obtained are entirely due to using such data.

(1) Downes (1947) studied the incidence of chronic sickness among spouses from data collected in a sample survey; only those chronic conditions confirmed by a physician were used in the analysis. The

diagnosis of a chronic condition in one spouse will, however, tend towards its easier self-diagnosis in the other, this in turn leading to an examination by the physician.

(2) A study of the incidence of sickness of children as reported by the mothers showed that there were "healthy" and "unhealthy" families (Downes, 1945). This would arise simply if some mothers exaggerate and others minimize the sickness experience of their children.

Detailed Surveys of Selected Population Groups

These surveys have the nature of well-controlled investigations. The data collected may relate only to sickness or may include environmental and other aspects. The sickness may be a single condition, a related set, or all conditions. Seldom can all clinical aspects of an inquiry be kept under direct and constant clinical supervision. In surveys among persons living at home, unless there is regular, say daily, home visiting by the doctor, whether or not the doctor is called to the subject depends on a lay estimate of the need, which in turn may vary from person to person. There is undoubtedly great difficulty in getting reliable sickness data for individuals or families living at home. The Ministry of Health, in its nutrition surveys, failed in its efforts to get sufficient of a random sample of housewives to attend a clinic for a limited clinical examination. The difficulties increase if the subjects are expected to attend on several occasions over a period. The scope of investigations involving, say, the family is thus at present very limited.

Groups such as children or work-people who attend a particular place are excellent subjects for study. The kind of data which might be obtained in a study that continues over some length of time would be drawn from three sources: (*a*) Clinical overhauls, say every six months, these being as comprehensive as possible. (*b*) Daily clinical examinations to ascertain whether or not a child is sick even though not absent from school. A nurse, in association with the teachers, and with help from a doctor when required, might be able to do this. (*c*) Clinical assessment of those conditions causing absence from school. Medical certificates, to include the final diagnosis, could be obtained for absence of more than a few days. Uncertified short-time sickness could be checked by a school nurse.

Surveys Based on Absence from School or Work

In studies of sickness causing absence from school the usual method of inquiry is to track down the causes of absence by means of doctors' certificates, home visits, and notes from parents, enlisting the co-operation of teachers, school nurses, and school inquiry officers. The data collected include medically certified sickness, and uncertified sickness based on diagnoses or descriptions of symptoms by the parents which are not considered serious enough to warrant medical consultation. The parents' intimate knowledge and constant appraisal of the child's capabilities and condition are fully utilized, as are the teachers' and nurses' knowledge of the various aspects of the child's life. Only sickness causing absence from school is recorded. This is probably fairly complete for certain conditions, such as infectious disease, while for others it may suffice for many purposes. What these conditions are deserves investigation. Absence due to sickness may vary between schools, for reasons other than real differences in sickness rates. Thus, the "atmosphere" in one school may encourage children to be absent for minor conditions, whereas in others it may do the reverse. A mother may believe that a sick child will be better off going to school than staying in a noisy restless home, while the opposite may be thought by a mother where the home is quiet and restful. School meals may be an inducement for attendance, and so on. The same sort of thing applies in residential schools. Thus even when absence is medically certified differing adjustments may be reached between the teaching and medical staffs on the severity of the conditions that warrant absence, and this may vary, for example, owing to school examinations.

The dangers of using absenteeism to measure and compare sickness among work-people have been discussed by Stocks (1944), who, speaking of medical certification under the National Health Insurance Act, says that the rates are "affected by changing attitudes to the relative importance of keeping at work and of safeguarding the health of the people affected. These attitudes in turn are affected by economic conditions, amount of unemployment, wage rates, benefit rates, health propaganda and education." Bashford (1942) shows that such a simple matter as a change in supervision in an office reduced sickness absence by about 50%.

Surveys by General Practitioners

The collection of morbidity statistics from general practitioners may well prove a fruitful source of information, limited, of course, to those conditions receiving medical attention. In a recent survey in Canada (Richter, 1948) the demand for health care was compared for two population groups—one representing the panel of several insurance doctors, and the other served under the fee-for-service system. Records were supplied by the doctors of all illnesses which received medical attention over a period of twelve months as well as the type of care given.

Sample Surveys of Families or Individuals

In sample surveys a random sample of individuals are interviewed in their homes and asked what sickness they or members of their families have experienced over some previous period. The information is usually collected by non-medical investigators, who do not, however, make any "diagnosis of complaints" (Stevenson, 1947) but record what they are told. No definition of sickness is imposed or set up, the informant reporting those conditions of which she is aware and which she "considers to be of sufficient importance to be remembered and designates as such" (Collins, 1933). The information coming from lay persons suffers from the drawbacks previously mentioned, and will be subject to many kinds of bias. Moreover, as Ryle (1946) points out, "Even though crude assessments may seem justified when the samples are large, the findings cannot then be given a high valuation."

The sickness data are obtained at a single interview relating to the day of the inquiry (Perrott *et al.*, 1939) or to a previous period of two or three months (Stocks, 1947), or by a series of visits at intervals of a month or more to collect data over a period of several months (Sydenstricker, 1926; Collins, 1933; Downes and Collins, 1940). The methods of survey are basically the same, although, in some, refinements such as checking the diagnoses by reference to physicians have been introduced. Their accuracy differs according to the effort asked of the memory. The data collected relate (1) to sickness for which medical advice has been sought, representing about 30–50% of the total sickness reported—for most, but not all, diseases this is probably reported with sufficient reliability—and (2) to sickness for which medical advice has not been sought, the diagnoses or descriptions of symptoms being based on non-medical opinion. The *Lancet* (1947) suggests "that reliance on the patient's own diagnosis is probably not a source of serious error, for when, in a similar survey in the United States, the diagnoses were referred to the doctor for confirmation, there was agreement [with the patient's diagnosis] in 90% [of cases]." This, however, is not so, as the 90% relates only to sickness clinically diagnosed and not to the total sickness recorded.

An interesting difference of treatment is accorded to acute and chronic conditions. An acute condition is recorded if it occurs to the knowledge of the informant, but "a chronic impairment of disease generally appears in the illness record only when it causes some distress or is the subject of a medical consultation or examination" (Collins, 1933). A chronic condition, even though quiescent, may have greater influence on the way of life than a transient acute condition, yet the former is not recorded even though known to the informant, while the latter is.

The question arises as to the relative value of sickness data collected in sample surveys by doctors (Walker, 1947; Sheldon, 1948) and by trained social investigators. The social investigator asks a number of set questions and records the answers without putting her own interpretation to them. Sheldon's (1948) method is as follows: "Apart from what was actually visible the only information available was the account by the individual of his symptoms. . . . Once the interview was well under way most subjects were willing to describe their complaints (if any) and answer questions in such a way that an intelligent guess of the underlying diagnosis could usually be

made." The doctor can thus use his medical knowledge to develop the interview in the most profitable directions. Further, "in spite of the obvious limitations of a survey by interview only, the results merit description since they illustrate the extent to which various types of complaints restrict the activities of old people." This raises the interesting point, To what extent could the symptoms be satisfactorily recorded by lay persons? Sheldon states that he found considerable discrepancies in the sickness data recorded by himself and by lay investigators, but gives no details. His own inquiry was limited to conditions confirmation of which did not depend on clinical examination, but he suggests that an expert examination, including a physical examination, of a random sample might be possible for certain conditions. Is it possible that lay persons can satisfactorily obtain information on certain conditions, the symptoms of which are readily recognized and assume importance only when the patient is aware of their presence? It is to be noted that in the investigations on the common cold (Andrewes, 1948) the lay subjects record their symptoms, and the doctor then decides whether or not they had a cold.

Formulation of the Problem

The planning and execution of a morbidity survey require that the purpose and objectives of the survey be defined with clarity and precision; that the scope and limitations of the method of survey be recognized; and that the survey as planned will in fact give the information which it is intended to obtain. What is eventually included will be a compromise between what the investigator would like to conclude, whether the criteria can in fact be assessed or measured, and whether the facilities are available for doing so. This process can be illustrated by a proposed inquiry into the loss of working capacity due to chronic sickness. To be decided are the definition of chronic sickness and the criteria for loss of working capacity. There is no hard-and-fast definition of chronic sickness, and it is feasible that the meaning adopted will depend on the objects of the inquiry. In some employments the loss of working capacity may be directly measurable by loss of output, but in others it may be possible to measure only loss of working time—that is, absenteeism—and it may or may not be possible to assess how much of this is due to chronic sickness. Even then what causes incapacity in some employments may not do so in others. The final form of the inquiry may thus be greatly restricted and the results open to many reservations.

Discussion

The purpose of morbidity surveys is to provide data on the incidence, social pattern, and method of spread of sickness, and thus produce a basis for the planning of the health services. This falls into two parts, the action required to prevent disease and the services necessary for treatment, or as Ryle (1946) puts it, "social planning and political action." The various kinds of surveys are not alternatives, but provide information of different kinds, each contributing to the picture as a whole, but only to the extent that the information presented is reliable. Small detailed surveys, especially if the results are tested by repeated inquiry, are obviously of special importance.

There is an urgent need for research into all aspects of morbidity surveys, not only in regard to methods of field inquiry but also in regard to related matters such as the criteria for various environmental factors and the statistical treatment of data. The recent difference of opinion between Woolf and Waterhouse and Buckatzsch (Buckatzsch, 1947) on the method of estimating the effect of intercorrelated social data on infant mortality illustrates the need for statistical research, the application of which to social inquiries has been neglected. The dearth of essential "tools" is due in part to the urgency of the tasks which have faced social scientists, which has led them to "get on with the job" instead of devoting their energies to developing and assessing methods. The future of social surveys, including morbidity surveys, depends on the developing and testing of techniques. The aim in social inquiries should be to impose the same standards of controlled experiment and investigation as are applied in the natural sciences.

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EPILEPSY AND TETANY

BY

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The following case report shows that the true significance of an attack of "symptomatic" epilepsy may long remain latent.

Case Report

A flight lieutenant in the R.A.F. aged 24 was admitted to an R.A.F. hospital on July 11, 1947, with a story from his medical officer that a batwoman who had gone to remove his supper tray had found him in bed in a semiconscious state, and when she approached him he made as though to strangle her; for this reason he was put in charge of the neuropsychiatrist.

On questioning, he denied any memory of this attack, after which he felt weak but not confused, nor did he complain of headache. For three days previously he had complained of some malaise, nausea, anorexia, and later vomiting, followed by the most striking symptom at this stage—hiccup. He had not bitten his tongue or been incontinent in this attack, but he gave a history of a similar chain of events two years previously while overseas, ending in an attack in which he bit his tongue. On account of that epileptiform event he had been invalided home. During the intervening period he claimed to have had perfectly normal health and had taken no medicine or tablets.

His past history showed nothing to suggest petit mal, and he had not suffered from fainting attacks or headaches. He had never sustained a head injury. He had had diphtheria and pneumonia as an infant, and his appendix had been removed for an acute attack without complications three months before admission.

Examination showed a well-built man with no evidence of loss of weight. There was some dryness of the mouth (to which he attributed his slight dysarthria), with a healed scar on his tongue. Mentally he seemed rather apathetic and slightly drowsy, and was hiccuping 20 to 30 times a minute. Blood pressure was 120/80. No other abnormal physical signs were found in any system on clinical examination.

During his first three days in hospital numerous measures were tried to control his hiccup, which persisted even during sleep, but no treatment had any prolonged effect. He was encouraged to eat what he could manage of light diet and to take plenty of fluids, as the vomiting had ceased since admission.

On July 14 he was still a little drowsy and dry in the mouth. His blood urea was 85 mg. per 100 ml., blood sugar 130 mg. per 100 ml., and his urine contained a cloud of albumin. A general

medical opinion was here sought; it was considered that these findings, together with his clinical state at the time, were accounted for by the degree of dehydration present, and although his hiccup had become much less frequent (possibly owing to thiopentone and cyclopropane anaesthesia), 2 pints (1.14 litres) of normal saline solution were given intravenously on July 16. Soon after this his clinical state returned to apparent normality and he felt fit. Four days later his blood urea was 20 mg. per 100 ml. and his albuminuria had disappeared. During this period examination of cerebrospinal fluid, blood W.R., and intravenous pyelogram were all negative.

As he felt so fit and had a long-standing arrangement to start a 10-day holiday on July 31, he was allowed to leave the hospital with the idea of readmitting him afterwards for further investigations. While at home on the very night of his discharge he again developed nausea and hiccup and vomited about 15 times during the subsequent 36 hours before being readmitted.

The striking feature now was the presence of marked tetany, attacks of which he had been having for about 12 hours previously. The condition was symptomatically relieved by the intravenous injection of 10 ml. of 10% calcium gluconate, but three further attacks were witnessed within the next 24 hours, evidently initiated by the effort of vomiting. The extremities assumed the typical posture, the breathing became laboured, cyanosis was marked, and consciousness was lost within a minute. The pulse was 54, with some premature systoles, its volume remaining good. After about three minutes gradual relaxation occurred, his colour improved, and his jaw, clenched at first, started a regular munching movement, but there were no true clonic movements of this organ or of his limbs. Unconsciousness remained for about 15 minutes, with eyes rolling and squinting, but with normal-sized equal pupils. There was no laryngeal stridor. His blood pressure during the recovery phase was 120/80.

The clinical diagnosis of tetany from alkalosis, with hypochloraemia, was confirmed by the biochemical investigations.

Only one attack occurred after the start of intravenous drip saline with 10 ml. of 10% calcium gluconate per pint (568 ml.), and within two weeks his blood chemistry had returned almost to normal, all symptoms having subsided.

During this exacerbation of symptoms the time had naturally come to review the nature of his attack in Egypt two years previously and any other relevant past history. He was himself quite definite that the prodromal events leading up to all his attacks had been very similar, and on direct questioning he remembered having had tinglings in his hands, feet, and lips before his original attack, though never any cramp. The description by the sister who witnessed the end of the attack had been recorded as a "convulsion, during which he was unconscious, with eyes open and face twitching for one minute, followed by a period of confusion in which he answered only 'Yes' or 'No.'" The tongue had been bitten, but there had been no incontinence.

No abnormality had been found on examination of the central nervous system and there was no pyrexia. A blood smear had been negative for malaria parasites, and examination of the C.S.F. had shown normal pressure, cell count, protein, and chlorides. He had been invalided home on account of this epileptiform attack and made permanently unfit for flying duties. On return to this country, radiographs of the skull and an electro-encephalogram had proved negative, as also had clinical examination by the consultant in neurology.

The cause of his attacks of vomiting remained the final matter for elucidation; he was most definite that he had had no vomiting whatsoever in the intervening two years and had never suffered from diarrhoea, indigestion, or any abdominal pain. In spite of this, the solution was apparently found in a barium meal, which showed a small prepyloric ulcer, with a large atonic stomach, a great quantity of resting juice, and a considerable barium residue in the stomach at eight hours, and some at 24 hours, even after a course of routine medical peptic-ulcer treatment for three weeks, with full doses of belladonna.

On Oct. 7 the abdomen was opened through a transverse epigastric incision and a partial gastrectomy was performed. A healed ulcer was demonstrated in the prepyloric region anteriorly: a well-developed cholecysto-duodenocolic membrane was found binding down the first part of the duodenum. At this point the duodenum was constricted and partially obstructed owing to thickening and fibrosis in its wall for about 4 cm., the parts distal to this being of normal calibre and consistency.

The findings were confirmed by examination of the excised specimen; the healed gastric ulcer did not appear to be producing pyloric stenosis, and it was presumed that the obstruction was caused by the organic changes in the duodenum secondary to the membrane as described.

Comment

This case shows two main points of interest: first, the fact that his original attack was of an epileptiform nature, which in the light of after events could confidently be assumed to have been of tetanic origin. While true convulsions are so well known in children as part of a tetanic state, it is undoubtedly easy to overlook this possible cause for them in adults, although briefly mentioned in some textbooks. Support is also lent to the opinion that it is unwise to stamp as an "epileptic" a patient who has an isolated convulsion—a point emphasized by Rook (1947).

Secondly, it was natural to presume from the *x*-ray appearance that pyloric stenosis secondary to a prepyloric ulcer was basically the cause of all his troubles; it was considered at operation, however, that this was not the true explanation but that his obstructive symptoms were due to a duodenal stenosis, secondary to a large persistent cholecysto-duodenocolic membrane. In either case the marked lack of abdominal symptoms apart from his attacks was difficult to explain. The subject is fully reviewed by Mahoney (1946), who considers that this membranous fold occurs in at least 18% of people, but only occasionally gives rise to symptoms. Of the 18 cases which he reports as pathological, the symptoms in the great majority simulated either chronic cholecystitis or duodenal ulcer.

I wish to thank Group Captain F. W. P. Dixon for the surgical notes on this case, and Squadron Leader T. S. L. Beswick for the pathological investigations.

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Medical Memoranda

Liver Abscess: Sporadic Amoebiasis

From time to time sporadic cases of amoebiasis have been recorded in the British Isles. It seems likely that with the return of troops from tropical service in the post-war years the incidence will increase. The following case is of interest in that no tropical connexion or association could be discovered.

CASE REPORT

A man aged 34 was admitted to hospital with a history of sudden onset of epigastric pain five days previously. His pain was associated with vomiting and was worse on deep inspiration. Up to the onset of the pain he had been in good health and had noticed no alimentary upset of any description.

On examination he was seen to be well nourished though sparsely built, and his complexion was pale. The tongue was coated and dry. The abdomen moved well, but there was muscle-guarding and resistance over the right hypochondrium. No mass was felt and the liver was not palpable. The remainder of the abdomen was soft and not tender. White blood cells numbered 27,000 (81% polymorphs). *X*-ray examination showed no gas under the diaphragm, although the diaphragm was raised about 1 in. (2.5 cm.). Temperature was 100° F. (37.8° C.), pulse 100. A diagnosis of probable leaking duodenal ulcer was made, and expectant treatment adopted. His general condition, however, did not improve, and five days later the abdomen was opened.

Operation.—The abdomen was explored through a paramedian incision. A large soft liver was found to reach to the right iliac fossa: it was so soft as to be impalpable even under anaesthesia. The peritoneal cavity and abdominal viscera were otherwise normal. The right lobe of the liver was then explored with a wide-bore needle and 5 pints (2.84 litres) of "anchovy sauce" pus were aspirated. On probing with the finger a further loculus was entered

which yielded another pint (570 ml.) of yellow pus. On this latter finding the cavity was drained after the instillation of 100,000 units of penicillin.

Convalescence following operation was uneventful. The pus from the abscess was sterile and yielded no amoebae. Repeated examinations of the stools failed to demonstrate the entamoeba, either in the cyst or vegetative form. *X*-ray examination of the bowel showed no pathological change. Sigmoidoscopy at this stage revealed the smooth, pale, glassy and rather rigid mucous membrane associated with chronic amoebiasis. A full anti-amoebic course was therefore given, the response being immediate and dramatic.

This patient was carefully questioned in order to elicit a possible source of infection. He lives in a Surrey suburb. Neither he nor any of his family has ever been out of the country, nor have any of his friends or business associates. He had no illnesses or symptoms until the day of admission to hospital.

C. F. Critchley, M.S., F.R.C.S.,
Honorary Surgeon,
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Cure of Exomphalos in a 2-hours-old Infant

The following case is worth recording, as the patient, so far as we know, was the youngest to be anaesthetized successfully with cyclopropane; it also shows that children do stand a fair amount of handling of the viscera.

Case Report

A full-term female infant was admitted to Dulwich Hospital on Dec. 7, 1947, with an exomphalos. On examination the abdominal

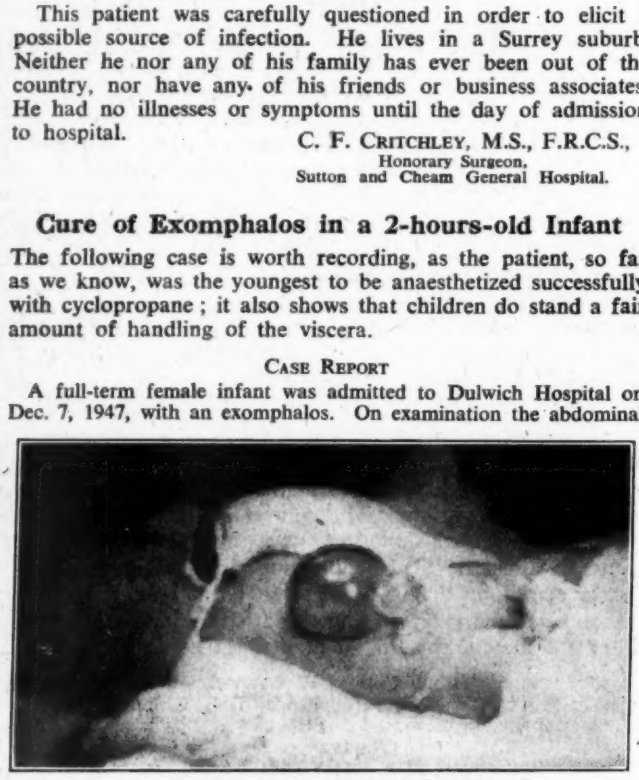

Fig. 1.—Showing the exomphalos before operation.

viscera were lying on the abdominal wall covered by transparent membrane (Fig. 1). The striking feature was that the major part of the liver was lying outside the abdomen.

Operation.—The child was operated on two hours after birth under cyclopropane-and-oxygen anaesthesia administered by Dr. J. Piney. An incision was made along the edge of the exomphalos and the membrane excised. The liver and then the intestines were returned to the abdominal cavity with some difficulty and the wound was closed with through-and-through silkworm-gut sutures. In

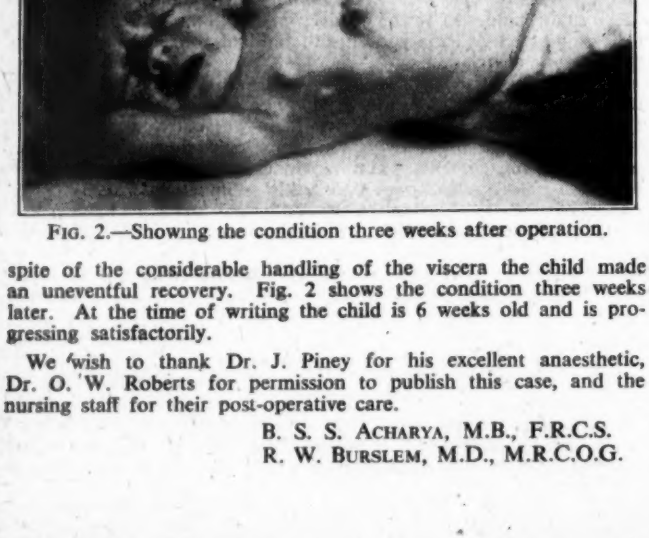

Fig. 2.—Showing the condition three weeks after operation.

spite of the considerable handling of the viscera the child made an uneventful recovery. Fig. 2 shows the condition three weeks later. At the time of writing the child is 6 weeks old and is progressing satisfactorily.

We wish to thank Dr. J. Piney for his excellent anaesthetic, Dr. O. W. Roberts for permission to publish this case, and the nursing staff for their post-operative care.

B. S. S. Acharya, M.B., F.R.C.S.
R. W. Burslem, M.D., M.R.C.O.G.

A Case of Rupture of Muscles of the Forearm

Rupture of muscles and tendons without breaking the skin is not uncommon. In the case of the long head of the biceps brachii, the plantaris, and the rectus femoris it presents well-recognized clinical features. I had not previously seen a case of rupture of muscles of the forearm, nor have I found it described in a somewhat limited search of the literature. Mercer (1943) does not mention any of the forearm muscles in a list of "those most frequently affected." The following case is reported because of its rarity, the clinical features seen, and the satisfactory result after a severe injury.

Case History

A private soldier aged 21 was driving a 15-cwt. truck when it went over a milestone and overturned, late on the night of June 19, 1947. He is unable to tell how his arm was injured because "everything happened so quickly," but as the milestone was less than 1 ft. (30 cm.) high it is likely that the wheel was very powerfully jerked in his hand. When seen in hospital about 14 hours after the injury, he complained of "pins-and-needles" in the fingers of his left hand.

His general condition was good. The left arm was very swollen from a few inches above the elbow to the finger-tips. The skin was pink and flushed. There was only a flicker of movement in the fingers and thumb. The radial pulse was present at the wrist. Radiographs showed no bony injury. A provisional diagnosis of subfascial haematoma was made; the limb was elevated on pillows and efforts were made to do finger movements. Next day (June 21) the limb was rather more swollen, the paraesthesia was unaltered. The radial pulse was still easily felt. Exploration was considered advisable.

Operation.—At noon on June 21—i.e., about 36 hours after the injury—a longitudinal incision was made over the maximum swelling, on the antero-medial aspect of the forearm, from about 1½ in. (3.75 cm.) above the elbow to 4 in. (10 cm.) below it. The skin gaped immediately, revealing rather congested superficial veins and deep fascia which was tense over a haematoma. The fascia was incised in the same line, and it was then seen that the large blood clot lay among ruptured pieces of muscles. The clots were removed, and it was found that the palmaris longus lay intact over the tattered and separated ends of the flexor digitorum sublimis and the flexor carpi radialis. The rupture appeared to have occurred a little above the middle of the forearm. It was clearly impossible to make a good repair of the injured muscles, and in any case it seemed inadvisable to risk any avoidable post-operative swelling. Haemostasis was secured and the skin sutured; there was a little tension in places.

The limb was placed on pillows and active finger exercises were encouraged. Within a day the paraesthesiae had gone. In about four days the swelling of the hand had subsided. On the ninth day a plaster cast was applied to prevent flexion deformity at the wrist. Finger movements were improving but weak. After 24 days there were two hard masses of fibrous tissue in the forearm, and the fingers were showing a flexion deformity unless the wrist was palmar-flexed. Frequent stretchings were done by the patient and the physiotherapy staff. Splintage was at this time avoided as it was considered advisable to encourage finger movements continually. After seven weeks a night splint was used to keep the fingers straight with the wrist straight. After nine weeks the grip was 50 to 60% of normal. The index finger was flexed 30 degrees at each inter-phalangeal joint when the wrist was straight—the other fingers were straight. Ionization with potassium iodide was tried in the hope of reducing the scar tissue a little.

When seen three weeks later (Sept. 19)—i.e., three months after the injury—the index finger was straight when the wrist was straight, but only in the mornings after a night on a splint: after use it became flexed. With the wrist dorsiflexed all the fingers became slightly flexed. There was no palpable activity in the flexor carpi radialis. The patient was able to use the fingers well, both individually and together. He had an excellent grip, about 80% normal (he is right-handed). He was practising finer-finger movements on a typewriter and was making rugs.

Improvement was still taking place when he was last seen. While a degree of limitation of extension of the fingers and wrist seems inevitable, it is likely that he will have a very strong and useful hand with little disability after a period of two to three months.

This case is published by permission of D.M.S., B.A.O.R., and of O.C. 25 (Munster) Military Hospital.

G. M. Sleggs, M.Ch.Orth., F.R.C.S.Ed.
Major, R.A.M.C.

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Reviews

SURGERY OF THE ABDOMEN

Surgical Treatment of the Abdomen. Supervising Editor, Frederic W. Bancroft, A.B., M.D., F.A.C.S. Associate Editor, Preston A. Wade, A.B., M.D., F.A.C.S. (Pp. 1,026; 457 illustrations and 3 colour plates. £5 10s.) Philadelphia and London: J. B. Lippincott Company. 1948.

There are not many absolutely up-to-date textbooks to which a practising surgeon can turn for detailed information on operative procedure, but this is one—a very comprehensive and helpful one. It is written by a number of authors, each an authority and known to all readers of American surgical literature. The editing has been very well done, for the unevenness of presentation expected in a book by several authors is noticeably absent. All the procedures described are sound and well established; there is no place for freak operations.

The editor, introducing the account of porto-caval anastomosis, gives a warning that outstanding skill and craftsmanship are needed, but says the operation is described because it is past the experimental stage. It is difficult to think of any abdominal operation not discussed, but there is no account of abdominal lumbar sympathectomy, nor of ligature of the vena cava, nor of the attack on a prolapsed intervertebral disk from the front. However, it may well be that the two latter operations will never be established as routine measures. The usefulness of the book is greatly enhanced by discussion of the surgery of the oesophagus and mouth. These sections of the book reach the same high standard. There are also excellent accounts of pre- and post-operative treatment and, best of all, a chapter called the "Fundamental Principles of Surgical Technique." It is curious to read in a book coming from the country where John B. Murphy practised that proctoclysis is ineffectual and not in use now. We can conclude only that modern surgeons have had no experience of this valuable method. It would be a captious critic who could find anything for serious adverse comment in this outstanding production.

C. A. PANNETT.

NUTRITIONAL DEFICIENCY

The Pathology of Nutritional Disease. By Richard H. Follis, Jr., M.D. (Pp. 291; illustrated. 35s.) Oxford: Blackwell Scientific Publications.

The author of this book discusses the chemical and anatomical changes caused by deficiencies in the food. The deficiencies considered include the elements (both those that make up the bulk of the mineral matter of the body and the trace elements), amino-acids, and vitamins. He discusses the functions of these factors and describes the disturbances of metabolism and macroscopic and microscopical abnormalities found in experimental deficiencies. He considers only the mammalia, except that he refers to birds when necessary for the sake of completeness, as in the case of vitamin B_1. He treats thoroughly of the changes found in mammalia other than man, but in general he considers only those changes in man that can be ascribed with some certainty to deficiency of the factor under discussion and has tried to steer clear of controversial points so far as possible. However, he discusses fairly fully the relation of changes in the nervous system to deficiency of vitamin B_1. He questions whether Wernicke's syndrome is the result of this deficiency and is sceptical about the prevalence of cardiac manifestations of vitamin-B_1 deficiency in the U.S.A.

Professor Follis can justly write at the end of many sections words to the effect that it is improbable that deficiency of a particular factor occurs in man. He might therefore have found more space to discuss those changes in man which he considers to be due to a single factor. Two short paragraphs only are given to an account of sodium deficiency, which is of practical importance and has been studied thoroughly. He considers keratinizing metaplasia in man very briefly; this matter is particularly interesting, since many morbid anatomists regard it as the result of inflammation or irritation, whereas students of nutrition maintain that it is produced by deficiency of vitamin A. The occurrence of follicular keratitis in experimental deficiency of ascorbic acid might be mentioned. Swelling and bleeding of the gums have been features of human scurvy since the days of the crusades; they are promptly cured by ascorbic acid. The account of the relation of gingivitis to ascorbic acid might have been allowed more than one sentence.

The book is well illustrated. Photomicrographs of sections of the costo-chondral junction, which are considered to show changes due to minor rickets, are particularly interesting, for it is improbable that such changes could be detected by *x* ray examination. It is on the basis of such changes that rickets was diagnosed in over 40% of children dying in Johns Hopkins Hospital during 1923–42. There are minor faults which might be corrected in later editions. Whatever Fuson and Christ synthesized (p. 91) in 1936, it was not vitamin A. The author of the paper referred to on p. 94 (Ref. 551) does not discuss the corneal changes due to deficiency of vitamin A.

J. R. MARRACK.

ION TRANSFER

Treatment by Ion Transfer (Iontophoresis). By D. Abramowitsch, M.D., and B. Neoussikine, M.D. (Pp. 186. £1 10s.) New York and London: Staples Press. 1947.

In this book the authors give a very full and detailed account of treatment by means of ion transfer (or ionization as it is commonly called in England). In Part I they describe the history of its development and discuss the physical aspects of the subject. In this part of the book the authors seem to be thoroughly at home with their subject, and their descriptions of the biophysics of the behaviour of the electrical current in human tissues are authoritative, and they also describe well the action of various ions used in treatment.

In Part II the authors describe clinical applications of their techniques. This part of the book is not so useful as the first. Too many conditions are said to respond favourably to ion transfer, and critical appraisal of results is lacking. Pathological terms are too vague and claims apt to be sweeping; thus we are told that "electrolytic penetration of calcium is applicable in neuralgia, delayed knitting of bone fractures, arthritis, and brain disorders (hemiplegia, epilepsy, etc.)." Similarly we read of "the treatment of arthritis resulting from rheumatism and gout." The text is clear and the bibliography and index are full.

W. TEGNER.

HORMONES AND NEOPLASMS

Endocrinology of Neoplastic Diseases. A symposium by Eighteen Authors. Edited by G. H. Twombly, M.D., and G. T. Pack, M.D. Oxford Medical Publications. (Pp. 392; illustrated. £3.) New York: Oxford University Press. London: Geoffrey Cumberlege.

The possible endocrine background of malignant disease has come more and more to the fore in recent years, and this branch of study has been encouraged by the discovery of the dramatic effects produced by oestrogens in cases of carcinoma of the prostate. The literature on the subject is wide and scattered and presents great difficulties to anyone other than an expert. As with most new subjects, the quality of the literature on endocrinology varies widely and it is necessary to know the standing of the author of a paper before one can take the results seriously.

The present volume is a welcome addition to the literature, since it provides this authoritative guidance and presents the general reader and the expert with an up-to-date account of the subject. The literature reviewed has been extended from the original series of monographs first published in *Surgery* in 1944, and includes that appearing up to 1946. The articles are models of their particular type and the lists of references are in practically every instance encyclopaedic. Most of the individual articles have over 100 references each, and the authors have in all cases given an excellent historical summary, almost invariably giving references to the original papers where the disease was first described. For example, in the chapter on parathyroid enlargement, by Oliver Cope, the references start with one to Sandstrom's work, and one can find references also to Von Recklinghausen's original paper and that of Mandl. Starting from these, one has all the papers of greatest importance up to the present time. It is very interesting indeed for general readers to be able to find the original papers of, say, Addison, Gull, and other pioneers.

The first short introductory chapter is followed by one on tumours in experimental animals receiving steroid hormones, and then one on the investigations into the role of the pituitary

in tumorigenesis. After this follow special chapters on the various types of tumours—namely, pituitary, ovarian, uterine, breast, prostatic, testicular, adrenal, thyroid, parathyroid, pancreatic, and pineal. All the articles are without exception first class, and it would be invidious to pick out any one for special mention.

E. C. DODDS.

DUNDEE ROYAL INFIRMARY

Dundee Royal Infirmary 1798 to 1948. The Story of the Old Infirmary with a short Account of More Recent Years. By Henry J. C. Gibson. (Pp. 71; illustrated.) A certain number of copies are available without charge on application to Dr. H. J. C. Gibson, at the Royal Infirmary, Dundee.

By an interesting chance the handing over to the State of the Dundee Royal Infirmary coincides almost exactly with its hundred-and-fiftieth anniversary. Inspired by this double event the medical superintendent of the hospital, Dr. Henry J. C. Gibson, has published in an attractive little book the story of the hospital—a story that might well pass for a synopsis of hospital development in this country during these hundred and fifty years. *Mutatis mutandis* it could be told of a hundred others of our large hospitals. There is for example the modest origin, in this case a development from an earlier dispensary for the sick poor started in 1735; the remarkable growth and expansion from a small two-story house catering in two small wards for 20 in-patients to a large, handsome edifice built between 1852 and 1855 to accommodate 280 patients, and expanded and developed since then so that the hospital now handed over provides well over 500 beds; and the story of the steady growth of specialism and the special departments. These changes are illustrated by interesting charts and tables, and a number of portraits and photographs add to the value of the book as a record.

One is reminded of the close and friendly association with their Dundee colleagues of two famous Edinburgh professors, Christison and Syme. Both were consulted on a number of problems, and together they advised on the plans of the "new" Infirmary. Consultation, however, was not confined to Edinburgh. Advice was also sought of Glasgow in the person of Sir William Gairdner, and the task of building the present Infirmary was entrusted to a London firm of architects. The author refers to some of the more colourful early members of the staff, among them John Crichton. A skilled lithotomist, Crichton combated the excessively cautious teaching of Astley Cooper and claimed to have "experienced the satisfaction of seeing affections which were considered insuperable objections to an operation gradually give way after the pain and irritation, occasioned by the original disease, have been removed." Here surely is prescience of the therapeutic triumphs of surgery that were to come.

Yet into the reader's mind, as the tale of progress and development unfolds, there steals the whisper "plus ça change, plus c'est la même chose." Consider this, written in 1797 by a benefactor in Bombay; "You have judged very rightly in electing for short periods the different officers of your hospital for I have observed where allowed to continue for life or for a long time that the business falls at last under the direction of some individual who generally manages it ill." Have we solved the problems of administration? Is the urge to more and more specialization in the best interests of medicine? Do we still need two kinds of nurse, as they did in 1798? At any rate we may hope with Dr. Gibson that the spirit of the hospital has not changed and will not change, and that "the relief of suffering will continue the paramount concern of all who serve this house."

E. R. C. WALKER.

When it was first published during the war there may have been a use for *Standard Radiographic Positions*, by Nancy Davies, M.S.R., C.T., and Ursel Isenburg, M.S.R. (second edition, 21s.; Baillière, Tindall and Cox) among Service personnel who were unable to take the normal two-year course in radiography, but it is difficult to recommend it now to radiography students. It is too elementary and has not been brought up to date in this the second edition. The authors do not mention pheniodol, nor do they describe tomography. The exposure chart given at the end of the book suggests a lamentable lack of knowledge of modern technique—witness that recommended for chest and barium-meal examinations. The modern student will want something more than this if she is to defeat the examiners for the M.S.R.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

Modern Clinical Psychiatry. By A. P. Noyes, M.D. 3rd ed. (Pp. 525. 30s.) London: W. B. Saunders. 1948.

Based on lectures in psychiatry delivered to medical students.

Science News. Edited by J. L. Crammer. (Pp. 158. 1s. 6d.) London: Penguin Books. 1948.

Articles for the layman on a variety of topics including demography, viscosity, and group psychotherapy.

Legislacion sobre Seguridad e Higiene del Trabajo. By Ministerio de Trabajo. (Pp. 202. No price). Madrid: Seccion de Prevencion de Accidentes e Higiene del Trabajo. 1948.

The regulations governing industrial health and hygiene in Spain.

Living Anatomy. By R. D. Lockhart, M.D., Ch.M. (Pp. 71. 12s. 6d.) London: Faber and Faber. 1948.

Labelled photographs of the nude body illustrating surface contours and muscular action.

Die Primare Tuberkulose bei Erwachsenen und Kindern und ihre Entwicklung. By St. J. Leitner. (Pp. 157. 15 Swiss francs.) Berne: Hans Huber. 1948.

Report of an investigation into primary tuberculosis in 160 adults and adolescents and 106 children.

Malignant Disease and its Treatment by Radium. By Sir Stanford Cade, K.B.E., C.B., F.R.C.S., M.R.C.P. Vol. 1. 2nd ed. (Pp. 383. 52s. 6d.) London: Simpkin Marshall. 1948.

The first of four volumes; contains Part I, on the radioactivity of radium, and Part II, on the biological effects of radiation.

The Medical Clinics of North America. Mayo Clinic Number. By various authors. (Pp. 305. No price.) London: W. B. Saunders. 1948.

Includes a symposium on anomalies of the heart.

Textbook of Pharmacology and Therapeutics. By H. N. Wright, M.S., Ph.D., and M. Montag, R.N., M.A. 4th ed. (Pp. 720. 20s.) London: W. B. Saunders. 1948.

This edition contains much new material on drugs introduced into therapeutics in the last few years.

Nursing of Children. By G. Sellew, B.S., R.N., Ph.D., *et al.* 6th ed. (Pp. 486. 20s.) London: W. B. Saunders. 1948.

A textbook for nurses.

Nursing History. By M. Goodnow, R.N. 8th ed. (Pp. 404. 17s. 6d.) London: W. B. Saunders. 1948.

A short history of nursing throughout the world.

Hygiene and Health Education for Training Colleges. By M. B. Davies, B.Sc. 4th ed. (Pp. 438. 9s. 6d.) London: Longmans, Green. 1948.

An outline of health education intended particularly for teachers in training.

Childhood and After. By S. Isaacs, C.B.E., M.A., D.Sc., Hon. D.Sc. (Pp. 245. 15s.) London: Routledge and Kegan Paul. 1948.

Studies on the psychology of young children.

An Apple A Day. By P. Gosse. (Pp. 195. 10s. 6d.) London: Cassell. 1948.

Stories and reminiscences from the author's varied life

Correlative Neuroanatomy. By J. J. McDonald, M.S., M.Sc.D., M.D., *et al.* 4th ed. (Pp. 156. $3.00.) California: University Medical Publishers. 1948.

A students' manual relating the physiology and anatomy of the nervous system to clinical signs and symptoms.

Medicine and Science in Postage Stamps. By W. J. Bishop, F.L.A., and N. M. Matheson, F.R.C.S. (Pp. 82. 7s. 6d.) London: H. K. Lewis. 1948.

Includes many illustrations of stamps of medical interest.

BRITISH MEDICAL JOURNAL
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HABITABILITY OF SHIPS

Macdonald Critchley[1] in his Croonian Lectures described the hardships due to extremes of climate which the seamen serving in the ships of the Arctic convoys and in the Indian and South-West Pacific Oceans had to endure. The reports from the Tropics in some respects disclosed a new experience, because before the second world war no sea battles had been fought in modern steel steamships in tropical waters. In the 1914–18 war action stations in the temperate climates of the North and Mediterranean Seas had not been in any way intolerable. However, the possible effects of hot climates combined with the "wild heat" which escapes from the machinery of the ship herself and accumulates between decks had been carefully examined in peacetime, and the means of maintaining a satisfactory atmospheric environment in the key positions of the ship during action had been fully investigated.

The conclusions reached in peacetime were that the conditions, if uncomfortable, were not intolerable, and that they did not entail a degree of hardship which the traditional tough and climate-conditioned British seaman of high morale would not be prepared to accept willingly in the day of real battle. When, therefore, in the 1939–45 war lurid stories and bitter complaints of the conditions between decks arrived from ships serving in the Tropics, old and experienced sailors at Admiralty headquarters were at first doubtful about how far these reports should be accepted as factual or as the time-honoured "grouses" which were the recognized safety-valves of all men on active service abroad. However, the Royal Naval Personnel Research Committee of the Medical Research Council was asked to investigate the climatic conditions in warships in the Tropics. Some of the valuable scientific work carried out has been described recently in this *Journal* by Surgeon Commander F. P. Ellis,[2] naval secretary to the R.N.P.R.C. and the naval medical officer in the team of naval and civilian expert observers responsible for the field work. This team confirmed that the complaints and anecdotal evidence were not overstatements. Indeed, scientific tests showed that the heat and atmospheric conditions between decks had more serious physical and psychological effects on fighting efficiency and health than had been indicated by the subjective feelings of the ship's company themselves. There had been failure at the Admiralty in pre-war days to envisage the difference in atmospheric environment during peacetime manœuvres and real war in tropical seas. The exercise of action stations in peace lasted an hour or two once a week. In war, action stations were of daily occurrence and lasted for hours at a time. Blackout and "war damage precautions" interfered continuously with proper ventilation. There was no let-up from these austere living conditions in war such as occurred during the pleasant health cruises to cooler parts of the station, with plenty of leave, healthy recreation, and jaunts ashore, which were part of the peacetime routine on hot stations. Again, with ship's companies made up of 85% unseasoned conscripts, the crews were themselves of very different composition in peace and war.

The results of the investigations of the R.N.P.R.C. team of observers combined with the evidence of experienced sea captains on naval operations in tropical waters proved that extensive air-conditioning was the only way of maintaining the minimum effective temperature compatible with the maximum efficiency of a warship on active service in the Tropics. In order to compare the conditions in different types of ships serving in the same or different climates some simple objective index entirely dependent on the human element was found to be necessary in addition to the physical and mechanical measurements of habitability such as effective temperature.[3] For psychological reasons no reliance whatever can be placed on the subjective sensations of any single individual, whoever he may be. An admiral or a stoker may equally be a robust insensitive optimist or a weary nervous pessimist, with corresponding feelings and opinions concerning the same physical environment. The present problem of the effect of powerful heat-producing engines on the health of the ship's company attracted attention from the first introduction of steam into the Royal Navy. Admiral J. B. Sullivan, in 1854, reported to the Admiralty that "it is the large screw-ships which have been unhealthy. It is the heat of the engines confined under the deck which seems to cause it." This observation can never be repeated, because only during the actual switch-over from sail to steam could the ill effect of "wild heat" on the health of seamen be properly controlled by the presence in the same squadron of the old sailing ships in which no "wild heat" could accumulate.

The sick returns have for long been used as an unbiased gauge of the healthiness of different types of ship, but in some ways the ordinary sick lists are unsatisfactory measures of habitability. The naval medical administration therefore decided, largely on the results of the data collected by the R.N.P.R.C. observers, that the "attending list" might be a more convenient or sensitive index of healthiness or habitability than the sick list. The attending list in naval parlance refers to men with minor ailments or injuries who are not ill enough to be retained in the ship's sick bay or sent to hospital. The attending lists, not being considered important, were usually kept in an irregular and haphazard way, and before they could be used as a comparative index of habitability a simple standard method of recording had to be devised and instructions issued to the medical officers of all ships regarding the way they were to keep the lists and make returns to the medical department of the Admiralty.

The full details of this new statistical return and the conclusions reached after it had been given a trial are embodied in a report prepared by Dr. J. A. Fraser Roberts for the R.N.P.R.C. and published recently in the *British*

[1] *British Medical Journal*, 1945, **2**, 145, 173, 208.
[2] Ibid., 1948, **1**, 587.
[3] Bedford, T., *Environmental Warmth and its Measurement*, 1946, H.M.S.O. London.
[4] *Brit. J. soc. Med.*, 1948, **2**, 55.

Journal of Social Medicine.[4] First, this new index of social health was found to give practical information about ship habitability, and in spite of the short time it was in use clearly showed that the attending list doubled in size in the passage from temperate to tropical waters within a week or two. Skin diseases, always a bugbear in the Tropics, showed a triple increase. As Fraser Roberts points out, the expectation that the attending list might be more sensitive than the sick list "is not completely realized. The trends in the sick list figures are somewhat clearer and the rise somewhat greater." But since attending-list patients are ten times as numerous as sick-list patients the rates gave what was urgently needed, an index that would provide significant figures over short periods of a week or two in one big ship, or in a small squadron of two or three small ships. Secondly, Fraser Roberts' paper clearly demonstrates the usual difficulty met with by all those who try this kind of co-operative statistical research. This is the problem of getting many medical officers (and others) to fill up forms intelligently and accurately even when they are really trying to be helpful. In addition this return was inaugurated at a most unpropitious time at the end of the war, when the use of ships as transports, the giving of leave to ships' companies, and, last but not least, the great psychological relaxation of tension which inhibited all interest in everything but demobilization also accounted for a large number of attending-list forms which had to be rejected as useless.

This experience, and many others of a similar nature, point a lesson no workers in social medicine can afford to neglect—namely, that in research dependent on statistical returns it will generally save time, money, and disappointment to employ a few trained and tactful specialist observers to travel around and explain to the non-specialist medical officers or field observers who collect the data exactly what is wanted and why it is wanted. Nevertheless, in spite of these difficulties—indeed, from one aspect, because of them—Fraser Roberts was able to prove that the attending-list return could be made easy and almost foolproof, and that it was the most rapid and reliable method yet devised for enabling the Medical Director-General and his staff to follow at a glance fluctuations in the social health and habitability of the fleets, squadrons, and single ships for which he was responsible. In addition the new return should prove invaluable for testing directly the efficiency of new ventilation, air-conditioning, and other schemes for maintaining the health of ships' crews.

Fraser Roberts calls his paper "a contribution to medical climatology." In this context it should be noted that a ship's crew is unique in that its own private physical and social environment is carried around the world with it. Man's success as a species depends not so much on his biological plasticity—his power of adaptation to an ever-changing environment—though that is great enough, but on being the only species that by the use of tools, shelters, and clothes has succeeded in adapting every conceivable environment to himself rather than in adapting himself to the environment. This principle should now be applied in the modern warship, which must be adapted to provide a suitable climate for her human complement. This means that ships must be air-conditioned to counteract the cold of the Arctic ocean and the heat of the tropic seas.

MORBIDITY SURVEYS

In the annual reports of the Registrar-General a hundred years ago Farr produced evidence that the excessive mortality in some areas resulted from unhygienic conditions of life. Since that time changes in living conditions have almost eliminated such diseases as smallpox and typhus and have brought about a steady improvement in mortality figures. In recent years, therefore, studies of mortality have given way to surveys of morbidity. In the first instance studies of the extent and causes of sickness were made in hospital. Hospital reports have always contained figures tabulating in varying detail the causes which led to admission of the patients. It has rarely been possible to relate these patients to the population from which they were drawn, and in addition the reasons for admission to any hospital may change appreciably over a short period. Many of the larger authorities—for example, the London County Council—have published extensive statistics which served rather to indicate the lines along which research might be pursued than to provide answers to specific problems.

Within the last few weeks the Nuffield Provincial Hospitals Trust has published a survey[1] by the Glasgow Health and Sickness Bureau of hospital-treated sickness among the population of Stirlingshire in the 12 months beginning on Oct. 1, 1946. This was a pilot study designed as much to find out the difficulties inherent in an investigation of this kind as for its own results. It may serve as a useful guide for further studies of the influence of social factors on the incidence of sickness treated in hospitals. In the past the paucity of data has made the study of the incidence of sickness among the general population almost impossible. Very little was known of minor sickness which caused no incapacity. The frequency of the different causes of illness and the resulting incapacity have been tentatively estimated, however, by inferences drawn from specific inquiries concerning a selected section of the population.

The most recent of these special investigations is that by Dr. Cecil Roberts,[2] who has reviewed the sickness experience of Post Office employees over the past 50 years. During this period the staff increased greatly in size. In 1946 three times more men and nine times more women were employed than 50 years earlier. Women had a higher sickness rate than men; on an average each woman was absent for 15.9 days in the year, against 12.3 for men, in 1946. The rate for 1946 was considerably above the rates for the inter-war period, when the differences between the sexes were not so marked. The average number of absences due to sickness was slightly larger for both males and females at ages under 35 than in the older groups, but the average length of absence per illness showed a steady rise with increasing age. There were considerable differences in the sickness rates among various occupational groups and in different regions of the country. Some of the variations over the period were possibly due to administrative policy, but the age of the population at risk must be considered an important factor.

[1] *Hospital and Community*. 1. *Hospital-treated Sickness Amongst the People of Stirlingshire*. 1948. Nuffield Provincial Hospitals Trust.
[2] *Mon. Bull. Min. Hlth*, 1948, 7, 184.

During the recent war it became necessary to determine whether abnormal living conditions, rationing, and other restrictions were affecting the health of the nation. Since there were no data in existence that could be used to find an answer to this question, the Ministry of Health undertook to arrange periodic sickness surveys. Comparisons of the results obtained showed the general trend of sickness, but for a number of reasons the actual sickness incidence may differ from the picture revealed by the survey. The various types of surveys that have been undertaken, the obstacles encountered, and the difficulties inherent in the schemes are discussed by Dr. E. R. Bransby in a paper published elsewhere in this issue (p. 678). As a wartime expedient the morbidity surveys gave a reasonably good indication of changes in the incidence of sickness, but it is open to doubt whether under more stable peacetime conditions the results justify the labour and expense of their collection.

Some over-optimistic hopes have been expressed about the value of the information which may be obtained by morbidity surveys. The object of any survey must be more than the mere collection, tabulation, and sub-tabulation of a mass of figures, since this type of investigation can provide little help to either the administrative or the executive authorities. Dr. Bransby suggests that the future of social surveys, including morbidity surveys, depends on the testing and developing of techniques. In morbidity surveys there are two primary conditions to be fulfilled before a start is made. The first is that there should be specific questions to be answered, and these questions must be presented in such a form that they can be answered. The second condition is that the data must be sound—advanced mathematical treatment in the analysis cannot make up for inaccurate fact-finding. The present methods of carrying out surveys contain so many potential sources of error that reservations must necessarily be made in attempting to draw conclusions from them.

SLIGHT ENLARGEMENT OF THE HEART

Cardiac enlargement is one of the most reliable signs of cardiac disease, and when heart failure is present the size of the heart gives some indication of the gravity of the condition. Considerable enlargement can usually be detected clinically, but *x*-ray examination is needed for the diagnosis of moderate or slight enlargements. Even radiography, however, is not always able to settle the question. There is a considerable range in size in the normal individual depending on height, weight, sex, and shape of chest. In the past there have been many attempts to find a formula for calculating the size of the heart from exact measurements, and these were fully described by Roesler,[1] who considered that the heart size could be determined correctly only by the method of volumetric reconstruction. But even when the exact volume of the heart is known and compared with figures obtained from a study of normal subjects it may still be impossible to say whether or not enlargement is present. Laubry[2] and his colleagues have expressed the generally accepted view—that such methods of mensuration are useless in determining enlargement which cannot be diagnosed by simpler methods.

[1] *Clinical Roentgenology of the Cardiovascular System*, 1937, Springfield, Ill.
[2] *Radiologie Clinique du Cœur et des Gros Vaisseaux*, 1939, Paris.
[3] *Brit. Heart J.*, 1946, **8**, 162.

In a paper published elsewhere in this issue Dr. R. Hartley describes an investigation into the causes of slight cardiac enlargement in a series of 18 cases. The method used to determine enlargement was radioscopy performed by more than one experienced observer. Apparent enlargement was found in deformities of the chest, and sternal depression, as described by Evans,[3] is especially likely to give a false impression of enlargement. The importance of actually seeing the patient before giving an interpretation of an *x*-ray picture is thus obvious. In some of Hartley's cases slight cardiac enlargement was recognized at a time when no cause could be discovered; yet later a murmur of aortic incompetence was found. Though suspected originally, the aortic lesion could not be confirmed even after a most diligent search for the murmur. In such cases there is clearly a use for phonocardiography. Another cause of slight cardiac enlargement without valvular disease or hypertension which might be added to the list given by Hartley is chronic constrictive pericarditis, for though these cases are not numerous their recognition is of great practical importance because of the successful results of operative treatment.

SURFACE PHAGOCYTOSIS

Workers in the United States have always been to the fore in studying pneumonia experimentally. Methods have been evolved for producing lobar consolidation at will and with regularity; these have thrown much light both on the genesis of the disease and on the mechanisms concerned in recovery from it. In one direction at least the findings have wider implications: they appear to require that we should recast our ideas about the conditions governing phagocytosis. In sulphonamide-treated experimental pneumonia, examination of the lung at different stages makes it clear that phagocytosis is responsible for the destruction of the bacteria. W. Barry Wood and his colleagues[1 2] have shown, first in connexion with pneumococcal pneumonia in rats and more recently to that due to *Bact. friedländer*, that each of these capsulated bacteria, which are supposed to be resistant to phagocytosis unless in the presence of antibody, are in fact actively attacked, ingested, and demonstrably killed by leucocytes before any opsonin can be detected in the blood. They devised an ingenious series of experiments to determine why this phagocytosis occurs in the lung, whereas the same organisms are entirely immune to attack by living leucocytes under ordinary conditions *in vitro*.

That some purely mechanical factor was concerned was suggested by an experiment in which leucocytes and bacteria were introduced into a lung which had been fixed whole and washed free of formalin. Phagocytosis occurred in this environment with or without artificial respiratory movements. Leucocyte–bacteria mixtures were then placed on various surfaces. On glass or cellophane nothing happened; on fragments of boiled tissue of many kinds and on filter paper or cloth phagocytosis occurred. Finally, by using thoroughly washed and dried histological sections of lung the process could be seen taking place in the alveoli. The inert skeleton of lung tissue was placed on a coverslip and the leucocyte–bacteria mixture added; the latter filled the alveoli with a shallow layer of fluid, and the behaviour of its living elements could be studied in a hanging-drop preparation. It could then be seen that leucocytes encountering bacteria away from the alveolar walls passed them by; on the other hand, if they happened to pin them against the alveolar wall ingestion followed. The same thing occurred when bacteria were trapped between the surfaces of two leucocytes in contact. The beautiful serial

[1] *J. exp. Med.*, 1946, **84**, 387.
[2] Ibid., 1947, **86**, 257.

photographs illustrating the phagocytosis of *Bact. friedländer* under these conditions are unmistakable in their significance. The ingestion of bacteria only when they are immobilized by being trapped between the leucocyte and another surface, whether that of another leucocyte or a fixed tissue cell, has been named "surface phagocytosis." That it occurs in the absence of antibody has been abundantly proved. On the other hand, in the presence of opsonin phagocytosis is independent of this mechanism, bacteria being ingested when in suspension in a fluid medium.

It seems certain that these observations have a wider application, and that phagocytosis anywhere is conditioned by mechanical factors. As these authors point out, one of the reasons why lung abscesses complicating *Bact. friedländer* pneumonia cannot be sterilized may well be that in a cavity containing nothing but fluid the physical conditions most favourable to phagocytosis are lost. The same consideration should apply to suppuration and to fluid effusions in general elsewhere. It may well have a bearing on the genesis of diffuse meningitis and on persistence of infections of the urinary tract. It will be interesting to watch the impact of this new idea on the study of inflammation generally.

KEROSENE POISONING IN CHILDREN

Like all other volatile hydrocarbons kerosene (lamp-oil) is essentially a narcotic, producing cerebral depression and a more or less severe paralysis of the vagus and respiratory centre. It appears, however, that children who recover from the immediate injurious effect of accidentally swallowing kerosene may develop later lesions, both inflammatory and degenerative—inflammatory in the lungs, and degenerative in the myocardium, the liver, the kidneys, and the gastro-intestinal tract.

A recent analysis[1] of 35 cases of accidental kerosene poisoning in children divides them roughly into three groups, according to the predominating incidence of cerebral, pulmonary, and degenerative signs. The cerebral group showed marked drowsiness but very little evidence of lung involvement, and they recovered rapidly. The pulmonary group developed severe pneumonia, and recovered slowly. Children in the degenerative group also had severe pneumonia, but in addition developed signs of cardiac injury, persistent albuminuria with blood cells and casts, and, in some cases, hepato-splenomegaly and occult blood in the stools.

Whether aspiration of kerosene or its absorption from the gastro-intestinal tract is the more important cause of the pulmonary and organic lesions is still a matter of some uncertainty, but animal investigations[2] have indicated that vascular damage resulting from absorption into the blood stream is certainly a factor in both.

In any case the treatment is to remove as soon as possible all traces of kerosene from the gastro-intestinal tract in order to prevent not only further absorption but also further injury to the mucous membranes. In the 35 cases referred to, emergency treatment consisted of copious gastric lavage with weak sodium bicarbonate solution, administration of cardiac stimulants, of penicillin to prevent secondary bacterial infection of the lungs, and of dextrose solution and oxygen to reduce the hazard of pulmonary oedema. All these children made a complete recovery, even the degenerative changes proving reversible and leading to no permanent damage.

[1] Steiner, M. M., *Amer. J. Dis. Child.*, 1947, **74**, 32.
[2] Deichmann, W. B., Kitzmiller, K. V., Witherup, S., and Johansmann, R., *Ann. Intern. Med.*, 1944, **21**, 803.

PERMANENT INTUBATION OF THE THORACIC AORTA

Fifty years ago the problem of intestinal anastomosis was being thrashed out, with Senn and Murphy as the two advocates of the alternative methods of direct suture or the use of some mechanical contrivance. The universal use to-day of suture methods indicates how that problem was settled. Similar questions are now arising in connexion with the anastomosis of blood vessels and, to a lesser extent, of hollow ducts such as the ureter and bile ducts. It is as well to view these matters against the broad panorama of surgery as a whole rather than to consider the local problem alone, and there is ample justification for reopening the case for mechanical methods of anastomosis now that more suitable substances are available, such as vitallium tubes and the whole range of plastics. Moreover, there are occasions when it is necessary to bridge a gap which it is not possible to close by direct anastomosis.

Owing to his interest in resection of the aorta for coarctation, Hufnagel[1] has experimented with the permanent intubation of the aorta in dogs. He has reviewed the literature on similar mechanical methods of blood-vessel anastomosis, and much of this is reminiscent of the Murphy–Senn dispute. There are obvious advantages in establishing temporary bridges to maintain circulation, if only for a few days while a collateral circulation is improving, and even if thrombosis occurs early in a proportion of cases. Hufnagel suggests that a new plastic, methyl methacrylate (lucite), possesses properties which may make it suitable for permanent intubation. It is well tolerated by the tissues, has a high tensile strength, absorbs practically no water, is easily worked, and is inexpensive. It also has the highly desirable property of delaying the coagulation of blood.

The tubes used in this study were machined from blocks or cylinders, and the ends, which had two grooves with an intervening ridge, were carefully tapered. The tubes were 4 cm. long, and the walls were 1 mm. thick; two sizes were used, 1 cm. and 1.3 cm. in diameter. The inner aspect was polished to an extremely smooth finish with finest jeweller's rouge.

Fifteen dogs were used in the experiments. One to three centimetres of the thoracic aorta below the left subclavian artery was resected and continuity restored by a tube. The time of aortic occlusion was always under 10 minutes and often no more than 5–6 minutes. Seven of these dogs died as a direct result of the procedure—i.e., from shock or from haemorrhage caused by the ligatures cutting through. Three more died soon after operation (from pneumonia and empyema), but the tube appeared to be working well in each case. Five were killed at times up to 6 months and again the vascular result was satisfactory. In none of the experiments did thrombosis occur. It is clear that the greatest danger is cutting through of the ligatures, and Hufnagel found that braided silk was the best material.

From the result of these experiments it would appear that no case has been made out for a plastic tube to replace direct anastomosis of the aorta by suture—a method that has proved successful. It is, however, a useful technique to have in reserve should some accident occur to make direct anastomosis impossible. It may have a use in cases in which the aortic atresia is too long to permit resection and direct suture. In man large vessels down to the size of the femoral artery could be intubated by this method. Possibly it could also be used for replacing segments of bile duct or ureter.

[1] *Arch. Surg., Chicago*, 1947, **54**, 382.

ANNUAL CONGRESS OF PHYSIOTHERAPISTS

THE NATIONAL HEALTH SERVICE

The Chartered Society of Physiotherapy held its annual congress from Sept. 22 to 26 in St. Pancras Town Hall. For the first time in the Society's history the congress was an international one, invitations having been sent to physiotherapists' organizations all over the world; a special session was held for a discussion on international collaboration in physiotherapy.

At the opening session, presided over by Dr. W. S. C. Copeman, chairman of council, an address on the National Health Service was given by Sir William Scott Douglas, secretary of the Ministry of Health. Sir William Douglas began by asking his audience to imagine what it was like in countries where there was no planned health service on a national basis. He quoted from a study made by P E P into conditions in the United States, where only about 4% of the population were voluntarily insured for anything approaching full medical care, and 75% were without any kind of health insurance at all. The lowest income groups suffered more from ill-health and received less medical care than the other sections of the population. As for the distribution of general practitioners in the States, in 1938, in the counties surveyed where the average income per head of population was $100 or less a year, the number of doctors was 45.6 per 100,000 population, whereas in counties where the average income per head was $600 or over the number was 170 per 100,000. This was in a country wealthy and up to date, and the condition in other countries not so fortunately placed might be imagined.

Dealing with the finance of the national scheme, Sir William said that there was no real connexion between the payments under the national insurance system and the benefits under the National Health Service. The latter was a free service for all, financed principally from rates and taxes, plus a small contribution—some £30,000,000 out of a total cost of the service in the first year of £150,000,000—from the insurance fund.

In the new hospital grouping the disadvantages commonly associated with State control—uniformity, red tape, soullessness of the State machine—had been obviated. He described it as a great act of abnegation whereby the Ministry had surrendered its powers over the hospitals to regional boards and management committees. It was sometimes said that research and State control could not go hand in hand, but that was disproved in his experience at the Ministry of Supply during the war, when the best scientific minds in the country carried out a magnificent work of research under Government auspices in connexion with armament, and he could not believe that in the medical world the research would be less fruitful.

The general practitioner service was a universal medical service, open to everyone, with freedom of choice. Private practice was allowed, and the fears of doctors about direction had been overcome. At the moment more than 90% of the public had signed on doctors' lists, and the great majority of doctors had come into the service. On the subject of health centres a report had been received from the British Medical Association, and the Ministry had also a committee of its own to consider their organization. The centres would take different forms up and down the country; uniformity was not desired.

The rush for spectacles in the early days of the service was understandable. A recent survey in Wolverhampton had shown that, among men over 65 and women over 60, 90% wore spectacles for reading, but one-third of them admitted that their glasses were unsatisfactory, and one-sixth that they had obtained them from a general store or a travelling salesman or had inherited them from a relative; 36% had had no sight test for five years. The matter would adjust itself in time.

Dealing finally with physiotherapy, the Ministry was fully alive to its importance, particularly when it was regarded as part of a rehabilitation process and the physiotherapist one of a team associated with doctor and surgeon, remedial gymnast and occupational therapist. It was considered that at the beginning of the health service physiotherapy should be associated with hospitals, but in the later stage there would have to be a domiciliary service.

Physiotherapy in Industry

Dr. E. H. Capel addressed the congress on physiotherapy in industry. By the end of the war, he said, there were in industry 180 full-time and 900 part-time doctors, with 7,700 nurses, half of whom were State-registered. Since the war ended there had been some reduction in these numbers, but the majority both of doctors and of nurses remained. He could not give the exact number of physiotherapists employed in industry. He had sent out a questionary to the medical officers of about 70 large industrial concerns, and of the 64 who had replied, 54 said that physiotherapy was used in their works. The best physiotherapy services were afforded by large engineering firms and by a certain number of food manufacturers and commercial houses. In 48 of the 54 cases radiant heat and infrared treatments were provided; in 45, ultra-violet; in 41, massage; faradism and galvanism were provided by a much smaller number, and 16 provided short-wave and three long-wave diathermy. The number of untrained staff in these physiotherapy departments added up to over 200. It appeared that a large part of physiotherapy in industry was given by persons who had had no special training in that subject, usually by nurses who, of course, were mainly occupied with other duties.

Physiotherapy in industrial medicine, Dr. Capel continued, enabled many to continue at work who would otherwise be unable to do so because of the difficulties in attending for treatment at hospital. The cases customarily seen at industrial clinics were of injuries and sprains, all sorts of septic and rheumatic conditions (rheumatic conditions being particularly common in coal mines and in iron and steel and some other heavy industries), and another group of cases were those which arose from routine repetition jobs in which the same group of muscles was used all day long. These last cases very often appeared immediately after the worker had resumed his job following upon a short absence. Postural defects which arose in industry benefited by physical exercises. Except in the case of the more trivial accidents it was usual to notify the workman's private doctor and obtain his approval for any course of treatment.

The Experimental Approach to Physiotherapy

The Founder's Lecture in connexion with the congress was delivered by Professor L. J. Witts, with Lord Horder in the chair. Professor Witts spoke on the experimental approach to physiotherapy. In this field, he said, they were largely dependent on the scientists for any advances they were going to make. The number of first-class physicists or chemists who would be prepared to work in physical medicine would always be small, and the number who could get the correct biological grasp of things would be even smaller. But when these men did enter medicine the help they could give was out of all proportion to their number, and they soon learned to think clinically. The idea must not be allowed to grow that the physicist did the research and the doctor the clinical work; there was a true combination. Professor Witts illustrated his point by describing some research on the application of radiant heat. In one hospital—hospitals, if we came to think of it, he said, were in some ways the most dangerous places in the world—twice within a week semi-conscious patients were burned by the application of a radiant-heat cradle. Instead of blaming the nurse a physicist was called in to ascertain why the cradle was so dangerous and how it could be improved. As a result the application of the cradle was made quite safe and the transmission of heat much more efficient.

The problem of pain, Professor Witts continued, had always attracted some of the best brains in medicine, but it was a curious thing that at the present time there was a shortage of trained clinical investigators for work on rheumatism. One of the reasons why research was not carried out was because patients were segregated in special departments, and the problem of chronic rheumatism was not sufficiently brought to the notice of the young man in general medicine. There was always a difficulty in attracting a young man to borderline subjects—and rheumatism was on the borderline of medicine, surgery, physiotherapy, and other disciplines. The only way to get such men was to provide first-rate centres of research directed by scientific workers, and one of the encouraging happenings since the war was the way in which these centres were being developed.

Dealing still with the conveyance of heat to the tissues, Professor Witts said it had been ascertained that the transition from a comfortable heat to the sensation of burning occurred quite sharply at 44°–45° C., and it had become clear that much more heat could if necessary be put into the tissues without producing burns. The stage was set for a quantitative study of the local and general effects of radiant heat in health and disease. "When we get back to the research on pain it will be simpler to begin by studying the effect of physiotherapy on experimental lesions whose nature and extent we know. Lesions of various kinds can be produced with little or no danger in the muscles, joints, and ligaments, and experiments can be carried out on well-characterized diseases such as gout and rheumatoid arthritis."

Dr. W. S. C. COPEMAN, in proposing a vote of thanks to the lecturer, said that the profession of physiotherapy was entering upon a new era for various reasons, but as a result of Professor Witts's talk he had hope that the science of physiotherapy was entering upon a new era also. Professor Witts had brought the method of what was known as clinical research to bear upon this subject, and the results would be of very far-reaching importance.

Other lectures given in the course of the congress included one on rehabilitation of the injured, by Mr. H. OSMOND-CLARKE; on the management of the arthritic patient by the physiotherapist, by Dr. H. A. BURT; on the role of physiotherapy in obstetrics and gynaecology, by Professor GREEN-ARMYTAGE; and on the quadriceps in relation to recovery from injuries of the knee-joint, by Mr. I. S. SMILLIE.

The congress had its international side. A special meeting was held to discuss international collaboration in physiotherapy, and at another meeting speakers from Germany, Belgium, Norway, Sweden, the United States, and other countries gave brief outlines of the treatment of poliomyelitis as practised by them. Most of them emphasized the importance of warmth to the limbs, and in particular the avoidance of fatigue of the muscles by excessive electrical or other treatment.

At a luncheon held in connexion with the congress, presided over by Lord Horder, Dr. COPEMAN said that there were not enough members of the Society to fulfil the needs of the National Health Service Act. The Council had recognized that a certain amount of temporary dilution was inevitable, but it was anxious that the standards of the profession should not permanently be lowered.

Preparations and Appliances

GLOVE DRAINS

Dr. A. HOVNANIAN, assistant surgeon, Altounyan Hospital, Aleppo, Syria, writes: Owing to the scarcity of rubber tubing during the war I used discarded surgical gloves as drains. I have continued with this practice because of its usefulness; it is also economical. No claim is made to originality, and the only reason for publication is that it may prove useful to those practising at the outposts of civilization who are handicapped by scarcity of materials, even during times of peace. All torn and mended gloves that are unsafe for operative use are collected; loose tags of rubber are removed and the ends of the fingers cut. Long gauze strips with infolded ends are tucked into each finger so that they just show at the tips (see illustration). Gloves thus prepared are put singly in special labelled bags and autoclaved. No powdering is used. Favourable sites for drainage are large pus cavities, such as subdiaphragmatic, perirenal, or pelvic, where after the initial evacuation adhesions are apt to form between the two flattened surfaces of the abscess. In cavities where there are subsidiary "pocketings" glove drains might be of value, as the fingers of the drain may be spread out by squeezing the glove at the wrist.

Correspondence

R.M.B.F. Christmas Appeal

SIR,—I appeal once more to members of the medical profession to help those who are dependent on others for extra comforts. The beneficiaries of the Royal Medical Benevolent Fund are in such a case. They are either aged or infirm practitioners, their wives, widows, or children, and, through no fault of their own, find themselves in need of help.

I hope that subscribers to the Fund will send donations to provide a little extra cheer at Christmas time, and I earnestly beg those who are not subscribers not only to send Christmas gifts but to become regular supporters of the Fund. A special effort to obtain new subscriptions is urgently necessary because certain medical bodies such as the Panel Committees, which used to make generous contributions, have gone out of existence with the National Health Service Act.

Donations and subscriptions, marked "Christmas Gifts," should be sent to the Secretary of the Royal Medical Benevolent Fund, 1, Balliol House, Manor Fields, Putney, London, S.W.15, and will be gratefully acknowledged.—I am, etc.,

WEBB-JOHNSON,
President, Royal Medical Benevolent Fund

Medicine in the Commonwealth

SIR,—I should like to add a few words to your comment (Sept. 25, p. 606) on the latest development in the activities of our Association. I refer to the British Commonwealth Medical Conference and its complement the Empire Medical Bureau. This is a new departure of which the Association has every reason to be proud. It is all to the good to join in promoting a World Medical Organization, but melancholy experience of what has been done, or not done, by ambitious international bodies seems to me to point to the advisability of cultivating assiduously the much more promising family field. For the British Commonwealth is a *family* affair. During my official career one of our proudest boasts was that wherever the British flag was found, there you would find the B.M.A., but I never felt very comfortable when I thought of the unbounded hospitality shown to British medical visitors to other parts of the Empire, and the small return we often made for it. The Council has shown great wisdom in setting up the Empire Bureau with an able and enthusiastic director. The Commonwealth Conference is a natural and welcome sequence.

The future historian of the B.M.A. will, I believe, record this development as one of the wisest things the Association has ever done, and in saying this will, I hope, give due credit to our Past President, Sir Hugh Lett, who during his term of office did much to bring home to us a larger conception of the services we could render to our branches and affiliated bodies overseas. Those who accuse this country of "imperialism" might with advantage consider the way in which those members of the family have shown their belief that their membership of the Empire has been to them a benefit and a source of pride. In no sphere has this been shown more happily than in medicine. There is a great opportunity to increase this feeling of solidarity, and our Association has grasped it.—I am, etc.,

London, S.W.7. ALFRED COX.

Graduates from the Dominions

SIR,—As a Dominions graduate student who abandoned general practice on Vancouver Island in order to come to Britain for surgical training, I want to thank the B.M.A. and to congratulate those responsible for the excellent machinery which exists to help those in my position. My wife and I left Canada with considerable misgivings, having given up a reasonably lucrative post to come to austere Britain. Our experience since arrival has removed all our fears. The British Medical Bureau found me a satisfactory interim surgical post while waiting for the Royal College of Surgeons' course to commence; the Empire Medical Advisory Bureau has given me much good advice concerning postgraduate plans; and at the moment the sun

body is helping me to find a London flat. The British Postgraduate Medical Federation and other groups have been similarly helpful. I regard medical experience here as of enormous value apart from the obvious benefits in training. At a time when international unpleasantness is not a remote possibility, the exchange of graduate students would appear a very real way in which Empire co-operation can be furthered. A stream of students in both directions would perhaps be of value to all concerned.—I am, etc.,

Hove, Sussex. DOUGLAS FINDLAY.

Trilene as an Analgesic

SIR,—As I was chiefly responsible for the introduction of purified trichlorethylene as an anaesthetic and analgesic in 1941, may I be allowed to comment very briefly on Mr. F. Neon Reynolds's plea (Sept. 25, p. 620) for its domiciliary use by midwives? It is true that "trilene" is a most effective analgesic and can be given with a simple and portable inhaler, but when it comes to legalizing its use by midwives all sorts of complications arise. The Council of the Association of Anaesthetists of Great Britain and Ireland has had the matter under active consideration for some time, and the two research fellows of the association have been engaged on whole-time work on the subject. A brief interim report will be found in the current issue of *Anaesthesia*, and it is hoped to include a more detailed account of the important findings in the next number. I would suggest that those interested should peruse these reports, and they will then realize the complex problems which have still to be solved before the ideal "foolproof" obstetrical analgesic can be provided.—I am, etc.,

St. Albans, Herts. C. LANGTON HEWER.

SIR,—Mr. F. Neon Reynolds's letter (Sept. 25, p. 620) brings out the point that some improvement in the means of affording relief of pain during childbirth supervised by midwives is long overdue. The solution of the problem, however, is not so simple as he hints. Two outstanding defects in the "trilene" inhalers at present available for obstetrical analgesia are that the strength of vapour delivered varies both with room temperature and with the depth of respiration of the patient. Also the susceptibility of the individual patient to anaesthetic vapours has to be borne in mind.

There is no doubt that several inhalers give adequate relief of pain in a high percentage of cases, particularly where intelligent supervision is exercised. Nevertheless, a combination of circumstances can arise in which an unduly high concentration of vapour is breathed by a susceptible patient, and then the stage is well set for accidents which the limited training of many midwives in the case of the unconscious patient leaves them incompetent to deal with. Reasonable risks must be taken, but it would be hard to justify an occasional maternal or foetal misadventure with apparatus so obviously capable of improvement. If the present inhalers are modified to be safe in all cases they will be practically useless in the great majority.

Work is in hand at more than one centre to construct analgesia inhalers which will be independent of depth of respiration and in which a simple adjustment can be made for different room temperatures—in short, a simplified version of a successful chloroform inhaler specially designed for paratroops during the war.—I am, etc.,

Oxford. R. R. MACINTOSH.

Fibrositis

SIR,—The letter of Dr. M. G. Good (Sept. 25, p. 617) adds very little clarity to the article of Dr. James Cyriax (July 31, p. 251). Dr. Good's "hypothesis that the myalgic spots are due to . . . abnormal vasodilatation by stimulation of the vagus (vagotonia), which would lead to a deficient circulation and anoxia," is, to say the least, somewhat difficult of comprehension.

The following are some of the many questions that come to my mind on reading his letter. (1) Does vasodilatation produce ischaemia? (2) How, may one ask, is the vagus stimulated in these conditions; and, even then, how can it produce myalgic spots in areas so distant from its own areas of distribution? (3) Does Dr. Good suggest that the vagus takes part in the innervation of the latissimus dorsi, or, for that matter, of the gluteus maximus—two muscles which may appear to the patient to be the sites of pain? To do so is to suggest that since we first studied the first principles of anatomy we have developed—perhaps tragically—some phylogenetic changes in our "constitutions."—I am, etc.,

London, N.4. I. H. MILNER.

SIR,—I must join forces with Dr. M. G. Good (Sept. 25, p. 617) in the matter of local vasomotor disequilibrium as being the most certain cause of this tedious and extremely painful condition. One can state with some certainty that the aetiology covers almost all forms of the disease in wellnigh any part of, at least, the large muscles. Those who have their own experience realize that abuse, disuse, and trauma will bring an attack. Surely it is reasonable to suggest that, as Dr. Good has said, ischaemia is the prime cause. We all know of splendid athletes who gave up their sports to sit on an office stool and become what are said to be "muscle-bound." If that is not fibrositis, what is it?

I agree entirely with Dr. Good in his repudiation of the suggestion that primary fibrositis is an imaginary disease. Anxiety may bring on an attack, or *vice versa*.

In the Tropics chills and dampness are very well known causes, and the complaint seems to be more severe; motorcycling is really dangerous in those who are affected.—I am, etc.,

Reading, Berks. A. HENRY PRICE.

Suppression and Treatment of Malaria

SIR,—I have read with very great interest the reply given under the above heading ("Any Questions?", Aug. 21, p. 407) to a query regarding the value of paludrine, mepacrine, and quinine, respectively, for the suppression and treatment of malaria. But, while I agree most heartily with the statement, "For suppression, the drug chosen must be taken daily," I am convinced that the reference to quinine and blackwater fever needs considerable qualification.

When I was sent by the Indian Government over forty years ago to investigate blackwater fever in the Jalpaiguri Duars of Northern Bengal, we doctors in India used often to wish that we had remedies for other dangerous diseases one-half as effective as quinine was known to be for malaria. At that time I was not the least afraid of malaria personally, because seven years' work in a hyperendemic area of Assam had taught me how to protect myself by the systematic use of quinine. I used to take a 5-grain sugar-coated tablet of quinine sulphate every day; and if I developed any sort of symptom whatsoever, such as a headache, sore throat, indigestion, constipation, or looseness of the bowels, instead of stopping the quinine I promptly doubled or trebled the dose for a few days. Before adopting this regimen I had suffered repeated attacks both of benign tertian and malignant tertian malaria; so much so that on one occasion I nearly threw up my Assam appointment. But from the time I began to take quinine in the manner described I kept extraordinarily free of malaria, in an area where the spleen and parasite indices exceeded 90%.

At that time little was known regarding the origin of blackwater fever, which was thought by some authorities to be due to a special parasite. Schüffner, for example, had reported seeing bodies resembling spirochaetes in the blood of blackwater-fever patients. I had failed to confirm Schüffner's findings in a few cases examined in Assam; and I must confess that when I went to the Duars, where many fatal cases of blackwater fever had recently caused nearly a panic among the planters, I did so rather in fear and trembling.

After I had been at work in the Duars for a few months Major S. R. (now Sir Rickard) Christophers, I.M.S., joined me, and we continued our investigations for the best part of two years, eventually publishing two reports—one on malaria in the Duars and the other on blackwater fever. In the latter report, on page 173, we state the following conclusions:

"Blackwater fever results from a condition induced by repeated attacks or infections by malaria. It is precipitated by an acute attack of malaria, especially when under certain conditions this is associated with the administration of quinine. Quinine itself is innocuous and cannot have such an effect on a subject not previously

prepared. The consistent use of the remedy (quinine) by a community may even diminish the incidence of blackwater fever by reducing the liability to malarial infection."

The value of quinine for suppressing attacks of malaria and diminishing the incidence of blackwater fever is referred to again on page 177 of our report on blackwater fever, where, after mentioning four examples quoted by Deaderick in which the adoption of quinine prophylaxis against malaria was followed in each case by a reduced prevalence of blackwater fever, we go on to remark:

"Quinine prophylaxis, it is obvious, to be of any use must be effectively pushed. In the Duars already a large proportion of the European population has taken to the systematic use of quinine. The result has so far been not only a much reduced amount of malaria amongst those taking the precaution, but a very small number of cases of blackwater fever in this community. Only three cases which occurred among Europeans during the past twelve months were among those who professed not to believe in quinine and only took it when they felt unwell."

There had in fact been a startling reduction in the number of cases of blackwater fever after the commencement of the inquiry in May, 1907, *pari passu* with the progressive adoption by the planting community of a daily dose of quinine as a protection against malaria. When I came to leave the Duars in 1909 to take up the investigation of malaria in other parts of India I was not only confirmed in my former opinion regarding the value of quinine as a safeguard against malaria, but over and above this I had become convinced that a small daily dose of quinine was an even more certain preventive of an attack of blackwater fever than it was of an attack of clinical malaria. My experience during the next five years only strengthened these views and at the outbreak of war in 1914 led me to volunteer for active medical service on any malarious front, specifying for choice any area where blackwater fever was known to be endemic.

It will be seen from the foregoing that my experience affords no support to the statement contained in "Any Questions?" which inspired this letter, to the effect that: "If the infection is due to *P. falciparum* or if *P. falciparum* is the prevailing parasite in the area quinine must be avoided both in treatment and in suppression because of the danger of inducing blackwater fever." On the contrary, quinine can safely be used in the circumstances stated if it is used in daily doses for the suppression of malaria. The same rule appears to hold good for mepacrine. Neither quinine nor mepacrine should be used *intermittently* in blackwater-fever areas if dangerous side-effects are to be avoided. T. E. Wilson (*Med. J. Aust.*, 1943, **2**, 414) reports two cases of blackwater fever following mepacrine in men who had intermittent treatment for repeated attacks of malignant tertian malaria. He considers blackwater fever to be consequent upon a sudden dose of antimalarial drugs after a long intermission. "The onset of blackwater fever immediately after use of mepacrine suggests that this disease is not due to a hypersensitivity to quinine itself, but rather to a by-product liberated from the parasites themselves by an antimalarial drug."

The moral appears to be that whatever the drug chosen for the suppression of malaria—whether it be quinine or mepacrine, and quite probably paludrine also—it would be wiser to take it daily rather than intermittently.—I am, etc.,

Wallington, Surrey. CHAS. A. BENTLEY.

Analgesia by Sympathetic Block

SIR,—Mr. Albert Davis's article (Sept. 25, p. 585) prompts me to report a few cases of the use of "proctocaine" in sympathetic block.

A man, aged 68, feeble, and suffering from a bluish, cold, and painful hand following an injury to the thumb, had 10 ml. proctocaine introduced at the level of the 1st thoracic vertebra. This caused a fairly complete measure of relief, lasting at least four months.

A woman, aged 59, had a pressure ulcer on the foot which showed no signs of healing. 10 ml. proctocaine at the 2nd lumbar vertebra enabled the ulcer to heal.

A woman, aged 61, with an old-standing hydronephrosis of slight degree, but causing pain, had 10 ml. injected at the 11th thoracic vertebra; this removed the pain for at least a month.

A woman, aged 50, had thrombosis of the left popliteal artery; left foot colder than its fellow to touch; cramp in calf on walking 100 yards. 10 ml. proctocaine was injected at the level of 2nd lumbar vertebra. Now, six weeks later, the foot is still noticeably warmer than the other, and she can walk two miles without pain.

I was prompted to try this method by reading the book by Mandl, through the knowledge that Kenny had already safely used proctocaine in the sacral canal, and witnessing Mr. Haxton's demonstration of the use of a carbolic solution. Many patients requiring relief from pain are old or in poor general health; it may be that a few injections a year may make their lives more tolerable. In cases of popliteal thrombosis it is probable that immediate sympathetic block by proctocaine (until something more efficient is discovered) is the treatment of choice.—I am, etc.,

Nelson, Lancs. OWEN WILSON.

Medicine as a Planned Economy

SIR,—Dr. Edward B. Hendry (Sept. 18, p. 567) draws attention to a depressing trend of modern medicine—the use of the laboratory instead of clinical judgment to make the diagnosis and assess the patient's progress. Apart from overloading the laboratory with unnecessary work so that important tests cannot be done or may be done inaccurately, there are other and equally disturbing features.

The first of these is a tendency to regard the patient not as a man but as a factory of blood counts or of interesting *x* rays. The day is not far distant, if indeed it is not already with us, when the "clinician" on his morning round will not observe the patient but look at the report on his blood cholesterol. The second of these features is to be found in the articles in the medical press and in the accounts of disease given in the textbooks. More and more the patient is forgotten in a welter of urine and blood analyses, *x* rays, and electrocardiograms, for all of which the description may well be weighed in the balance and found wanting.

Compare any modern description of pernicious anaemia with Addison's original account.[1] To judge from their writings our modern haematologists pay scant attention to the patient. All too often the reader finds that the description of the cases consists of a series of dates against which are written blood and marrow counts, and he is left with a nightmare picture of large cells, small cells, cells with big nuclei, cells with little nuclei, and cells with no nuclei at all. From such descriptions he may derive a little knowledge, somewhat less help in his own recognition of the disease, and no pleasure at all. Let the reader turn to Addison. There he will find a word picture that will live in his memory, enable him, supposing he had never seen the condition, to recognize it when he met it later, and give him the immeasurable pleasure that only good descriptive prose can bestow.

I have chosen pernicious anaemia to illustrate my point not for poverty of other examples—Bright gives a better and more helpful account of nephritis, Parry and Graves of thyrotoxicosis, and Heberden and John Hunter of coronary thrombosis and angina than any of our contemporaries, and other examples abound—but because it and other anaemias are at present much discussed in the medical press and form examples *par excellence* of the poverty of our descriptive writing as compared with that of our forefathers and of the use of the laboratory to the almost complete exclusion of the clinical picture. Let us then return to clinical observation, to the use of good, clear English to describe what we see, and to more consideration of the needs and feelings of the patient, or our successors will say of us that our hands "like the base Indian, threw a pearl away richer than all his tribe."—I am, etc.,

London, S.E.10. R. DUFF CHALMERS.

REFERENCE

[1] Major, R. H. (1945). *Classic Description of Disease*. Springfield, Ill.

The Hippocratic Oath

SIR,—You reprint (Sept. 25, p. 616) the translation of the oath made by Jones in his scholarly work *The Doctor's Oath* (1924). This translation differs very slightly from that given by him a year earlier in the Loeb Classical Library (e.g., the 1924 work gives ". . . obedience to the physicians' Law, but to none other," whereas the better version is ". . . who have

taken the physician's oath, but to nobody else"; the former would appear to be a mistranslation, since οὐδείς is not an adjective). Your statement that the Oath is reproduced in very few histories of medicine and the somewhat inadequate comments on the reproduction in the most recent history (by Castiglioni, translated by Krumbhaar, second edition, 1947) prompt me to call attention to the important text, translation, and interpretation of Edelstein (*Suppl.* No. 1 to *Bull. Hist. Med.*, 1943) in which it is convincingly shown that the Oath is a Pythagorean manifesto of the fourth century B.C., and not the expression of an absolute standard of medical comfort.

The Pythagoreans believed primarily in the importance of dietetics; it is a pity therefore that the translation you quote gives, "I will use treatment to help the sick," instead of, "I will use dietetic measures (διαίτημα). . . ." They believed less in the efficacy of drugs and least of all in surgery. (Would we had a few more Pythagoreans to-day.) This, Edelstein points out, explains the difficult passage about cutting for the stone. The translation you give has the weak and almost meaningless word "either" for the strong οὐδὲ μήν. Surely the obvious translation is the alternative Jones gives and Edelstein adopts: "I will not use the knife, not even on sufferers from the stone." Certain scholars, perhaps thinking surgery should have a more important place, have made the passage refer solely to castration. Jones and Edelstein decisively reject this, and it would not be worth mentioning had not Castiglioni (*loc. cit.*) quoted in this vein what he calls Nittis's *new* interpretation (which was hesitantly suggested by Littré over a hundred years ago).

The Oath is a remarkable document showing a very high ethical standard. Whether the Pythagorean physician who composed it was right in his views on abortion, euthanasia, homosexual practices, and the revealing of confidential information derived from patients (forbidden by him but required under certain circumstances by our law), will no doubt be decided by the World Medical Association if it drafts a new Oath for the highest profession. We should all no doubt like an Oath of some sort, but if we follow the Pythagorean manifesto too closely we may have to swear to treat the sons (and daughters) of Ministers of Health as equal to our brothers (and sisters) and to teach them without fee.—I am, etc.,

Oxford. H. M. SINCLAIR.

Breast-feeding

SIR,—Having read with interest Dr. Enid L. Hughes's "Study on Breast-feeding in a Mining Town" (Sept. 25, p. 597), I feel it may be helpful to state some of my own experiences which may be factors in early weaning. Having worked as a G.P. in an industrial practice, my impression, like Dr. Hughes's, is that in very many cases the grandmother was the major single factor, and easy access to a clinic another. On the other hand, I found that many mothers readily responded to enthusiasm and interest shown by the doctor.

As a mother I should like to point out some of the difficulties that meet with little understanding and could be easily remedied by an interested adviser.

1. *The Cracked Nipple.*—Both my nipples were badly cracked a few days after the birth of my first child. The attitude of the hospital nursing staff seemed to be: you are making a lot of fuss about nothing. When I returned home, nobody had any intelligent advice to offer other than to wean the baby. Finally a friend suggested superficial *x*-ray therapy for the nipples. This enabled me to feed painlessly from one breast, and to express the other by hand three times a day and give the expressed milk by bottle. Both breasts eventually healed. But it is very much better to take the baby off the affected breast for a few days immediately the crack appears and before its base becomes indurated. A pump must not be used, but the breast should be manually expressed at each feed, and the milk given to the baby after the healthy breast.

2. In some hospitals it is the rule to give one breast only at each feed. When the milk supply is only just sufficient, this practice tends to diminish it still further. Mothers should be told that if there is any sign of decrease they should feed from both breasts at each feed.

3. When there is any decline in the milk supply, expressing the last few drops from both breasts after each feed seems to help increase milk secretion.

4. Most patients whose milk supply is poor tend to "save up" and give alternate breast and bottle feeds. It is sometimes difficult to convince them that the supply increases with the demand, and that therefore both breasts should be given at each feed and followed if necessary by a bottle. I have often found that if the mother understood and followed this practice complete breast-feeding was soon re-established.

And, lastly, encouragement by the doctor and nurse, and praise of the baby's condition, are very important indeed. I firmly believe that a more personal approach to many mothers would substantially decrease the incidence of early weaning.

—I am, etc.,

Sheffield, 6. ELENA ZADIK.

SIR,—I would like to suggest that one can throw some light on the interesting figures given by Dr. Enid L. Hughes (Sept. 25, p. 597) on early weaning at Newbiggin by comparing them with a very different series, rejecting as causes what is common to both sets of circumstances and listing the differences, all of which will be in some degree possible explanations. Here, for instance, are Dr. Hughes's figures (all reduced to percentages of the total number of cases) compared with 100 consecutive cases in general practice in York:

Dr. Hughes's Series		*My Series*
29	weaned by two weeks	4
39.5	total weaned by four weeks	21
19.5	weaned between one and three months	12
41	on the breast after three months	67

These figures are so different that factors equally characteristic of the two environments can be ruled out as explanations of the Newbiggin figures. These factors are overcrowding (including exaggerated modesty and interfering mother-in-law), fashion, and unwillingness to be tied. Neither milieu is rural. There remain the heavy work of the fisherwives and the high incidence of shift work in a heavy industry—represented at York only by a much smaller percentage of operative railway workers. Finally, there is a difference between the two series which I am inclined to think very important because it affects the whole of the statistical picture—the difference between discontinuity and continuity of treatment. These York cases are closely supervised by the same person from the reporting of pregnancy to the establishment of mixed feeding.

It is striking that Dr. Hughes's article says not one word about antenatal treatment of the Newbiggin mothers, for education for breast-feeding is undoubtedly needed in these days, should begin at the first antenatal examination, and is best done by the person who is to supervise the rearing of the infant. Notice next that under "Reasons for Weaning" Dr. Hughes is forced to give the reason advanced by the mother after the event, while I give the reason according to my own observations at the time.

As a first consequence the cases where no reason was definitely established are Newbiggin 14%, mine 0%. As a second consequence I am in a position, and Dr. Hughes is not, to divide the weanings unhesitatingly into those that were inevitable and those that were not. Of the four weanings before two weeks all were inevitable: two for infantile nipples, and two for illness of the mothers. Of the following 17, seven were again inevitable, the other 10 classed in my records as "deliberate." It is obvious that Dr. Hughes is severely handicapped in drawing her picture of Newbiggin mothers by the impossibility of making this distinction, and this impossibility arises from the discontinuity of the medical organization.

The very first cause of weaning to be considered in any rational survey is genuine failure of lactation. I report four cases. It is unlikely that this factor is very variable in the human species, and probably Newbiggin has about 4% of failures somewhere. Owing to the discontinuity of the medical organization Dr. Hughes has to confess that she cannot say where they are; they may be among the unexplained cases, but they may equally be due to difficulties with the baby at the breast, for which the figures are Newbiggin 2.3%, mine 0%. These difficulties tend to be distributed under other headings when one is able to observe them on the spot.

Finally, I am quite unable to agree with Dr. Hughes that her analyses are likely to be veracious because they are obtained early. I consider them to be obtained very late. My experience is that at three to four weeks it is already very hard to reconstruct the history of an infant's feeding. Even when the mother is entirely honest one can discover only what has

seemed to her worth noticing. In short, when Dr. Hughes sets out in the fourth week to discover why the babies are weaned she has the main answer already in her possession. It is because she cannot start to investigate until the fourth week.—I am, etc.,

York. F. Charlotte Naish.

Teaching Occupational Medicine

Sir,—In your account of the International Congress on Industrial Medicine (Sept. 25, p. 613) I have been wrongly quoted as saying that what was needed in teaching [occupational medicine] was fewer general principles and more detail. I did, in fact, suggest the exact opposite—that is, more general principles and less detail. Occupational medicine is now being practised in a variety of occupational groups, not only in factories and mines, but in commercial and transport undertakings, catering establishments, and even universities. Courses must therefore be designed to equip men and women for the practice of preventive medicine among these different occupational groups. It seems that this can only be done by teaching general principles. An elementary knowledge of such subjects as statistical methods, recording and analysis of morbidity, the influence of working environment on physical and mental health, the placement of the sick and disabled, are of far more value to the future industrial medical officer than a detailed knowledge of industrial health legislation, to which reference can be made when necessary, or of the toxicology of a hundred and one metals and chemical compounds which many I.M.O.'s will never see. If these courses are designed to teach the principles of preventive medicine it will be possible to have many lectures, visits, and demonstrations common to both D.P.H. and D.I.H. courses, and thus give teachers more time for research and the preparation of better lectures and less chance of becoming hacks.—I am, etc.,

Manchester. Richard Schilling.

Artificial Insemination

Sir,—My attention has been drawn to the letter from the Secretary of the Medical Defence Union in your issue of Sept. 11 (p. 530). Mr. Justice Vaisey is of course precluded by his judicial office from writing to the Press, but I have no reason to doubt that he would agree with the comment that I feel obliged to make.

I am surprised that the Secretary of the Medical Defence Union should take the view that a document "specially prepared and issued by the Medical Defence Union for the guidance of medical practitioners" should only be criticized with preliminary notice. I can assure him that there was no confusion in our minds between the Union's memorandum and the article in the *British Medical Journal* to which he refers.

It remains, in my view, true to describe as "superficial" a document which does not refer to the grave risk, approximating to a certainty, that one or other or both of the spouses will make a false declaration of parentage and incur liability to penal servitude. It is, in my view, "grossly misleading" to circulate for use a form such as the first of those annexed to the memorandum, containing, dressed up in quasi-legal verbiage, an assurance which no one properly alive to what he was doing could either give or accept. This point is expressly made on page 40 of the Commission's Report, and I do not understand Dr. Forbes' statement that no indication is given of the reason for our description of the memorandum.—I am, etc.,

Magdalene College, Cambridge. Henry Willink.

POINTS FROM LETTERS

Artificial Insemination

We publish below points from a number of replies to Dr. Norman Haire's letter (Sept. 25, p. 621).

Dr. S. J. G. Spencer (Oxford) writes: The basic distinction, which Dr. Haire seems to have missed, lies between ecclesiastical laws on the one hand, like the obligations to receive Holy Communion regularly and fast during Lent, which a Church can rightly enjoin only upon its flock, as Dr. Haire correctly implies, and, on the other hand, ethical precepts which a Church submits as a body of experience in moral principles to the moral conscience of all men, its members and its non-members, for their universal acceptance and adoption. It believes such universal ethical precepts to include laws derived intrinsically from the nature given by God to man. For instance, it considers the prohibitions against murder and theft to be derived from man's natural right to life and property; British criminal legislation has of course already embraced these two prohibitions. Now, it is manifest that if a Church impugns all or some facets of artificial insemination, whether rightly or wrongly, it does so not because they offend against its esoteric rules but because they break laws which, in its estimation, are derived inexorably from man's nature and are therefore universally applicable; such laws as the need to abstain from onanism and to procreate only through one's spouse. Such a Church must therefore inevitably submit to the moral conscience of mankind the necessity for the universal outlawing of these contrary practices by all possible means, including that of criminal legislation.

Dr. G. L. Russell (London, W.1) writes: Dr. Norman Haire describes the recommendation of the Archbishop of Canterbury's Commission on Artificial Insemination that "early consideration should be given to the framing of legislation to make the practice a criminal offence" as "monstrous impertinence." And he makes lavish use of the terms "totalitarian . . . Nazi, Fascist, Communist" to support his thesis. I entirely agree with him that it would be intolerable if the Church should attempt to *legislate* for those who do not belong to it; but no one proposes this. What is proposed is that those who have not only the power but the duty to legislate—that is, Parliament—should exercise that power, and perform that duty, in a matter which this Commission believed to concern all citizens, not only members of the Church. Dr. Haire seems to have forgotten, in his indignation against totalitarianism, that democracy is "government by discussion"—a continuous public debate to which every citizen, and every group, has the right to contribute.

Dr. F. S. Sinker (Leamington Spa) writes: It is the duty of the Church to proclaim, among other things, the Christian ethic, not solely to its own practising adherents but to society as a whole, "whether they will hear or whether they will forbear." That is part of its witness. It knows, and has good reason to know, that medical procedures undertaken without any reference to moral and spiritual values are not fully competent, nor are their long-term results conducive to a genuine and lasting rehabilitation of the patient. In the recent statement "Medicine and the Church," approved and published by the B.M.A. Council, occurs this passage: "Moral aspects in the cause, treatment, and prevention of disease cannot be overlooked, and in this field also it is desirable that there should be fuller co-operation. Medicine and the Church working together should encourage a dynamic philosophy of health which would enable every citizen to find a way of life based on moral principle and on a sound knowledge of the factors which promote health and well-being." Here is a clear recognition of the value of any effort officially inspired by the Church to give guidance in those aspects of moral behaviour with which medicine may be concerned, but upon which medicine as such is not competent to express an opinion. There are many of us who regard the annotation on "Artificial Insemination" (Sept. 11, p. 523) as a most able and fair summary of the value of the report of the Archbishop's Commission, and a well-deserved tribute to its distinguished members. "This Report is bound to stand," as the writer says, "for a long time to come as an outstandingly able summary of this complicated question."

Dr. Claud C. M. Watson (Edinburgh) writes: I agree with Dr. Norman Haire in that it would be preposterous to make artificial insemination a criminal offence. On the other hand, I think he condemns the Church rather too harshly. . . . I noticed one suggestion in the Commission's Report that I think ought to be strongly challenged, and that was that A.I.D. was "adulterous." Surely the essence of adultery is that illicit sexual intercourse must occur. Not by any stretch of imagination could artificial insemination be regarded as such. . . . My personal opinion is that if a husband has been found to be permanently sterile it is rather hard to prohibit the wife from having a child of her own if, as many such wives are, she is desperately keen to have one.

Dr. J. Houston Porter (London, W.2) writes: The extraordinary letter of Dr. Norman Haire makes such exaggerated and extravagant accusations against "the Churches" that few of its thinking men and women to whom he refers will be misled by it. . . . To suggest that the much vilified Churches, all of which are deeply deploring their present loss of membership and influence, could or ever would exercise totalitarian tyranny over the community at large is merely ridiculous. The Archbishop's recommendation which has provoked such an explosive reaction from Dr. Haire is simply that *consideration* should be given to the framing of legislation, not by Convocation or any ecclesiastical body, but by the people's representatives in the House of Commons.

Obituary

Mr. Vivian Johnson Morcom Taylor, who was orthopaedic surgeon to the Mansfield General Hospital and the Chesterfield Royal Hospital, died suddenly at his home in Chesterfield on Sept. 12. Educated at Kingswood School, Bath, and Liverpool University, he graduated in 1927, and took the M.Ch. in 1930 and the Edinburgh F.R.C.S. in 1931. After holding a number of resident appointments he became surgeon-in-charge of the Lurgan Infirmary in Northern Ireland, and was later assistant surgeon to Harlow Wood Orthopaedic Hospital. Mr. Taylor was appointed orthopaedic surgeon to the Mansfield General Hospital in 1941, and to the Chesterfield Royal Hospital in 1944. A surgeon of marked ability, his opinion was widely sought in the districts in which he worked. He combined an enthusiasm for his specialty with a flair for organization, and at the time of his death he was engaged in reorganizing the orthopaedic services for the Chesterfield district. For many years he had suffered from a severe form of asthma, so that he was more often than not working under difficulties. He fought his distressing complaint with great courage, and would never admit his disabilities even to his friends. In the end it proved more than he could withstand, and his premature death at the age of 44 was due to this condition. A charming personality and a man of great integrity, he will be missed by many. He leaves a widow, a son, and a daughter.—F. J. M.

Dr. Charles Cowan McCallum died at his home in Middlesbrough on Sept. 16, at the age of 50. A native of Glasgow, he graduated there in 1924, and took the Edinburgh F.R.C.S. in 1934. He was first of all a house-surgeon and subsequently honorary surgeon at the North Ormesby Hospital.

D. I. R. writes: By the death of Charles McCallum the profession in Middlesbrough has been robbed of one of its most respected and well-loved members. Both in his hospital and in private practice he was endeared to professional colleagues and patients alike by an unassuming charm and sympathetic understanding; nothing was ever too great a trouble for him to do, though for him it often meant working to a degree which would have been too much for many a younger man. A surgeon of considerable competence, it was perhaps in his own practice, and particularly in dealing with children, whose confidence and friendship he never failed to gain, that he was at his best. This was surely a reflection of his own ideally happy home life, as those of us who had the privilege of knowing him and his family well can testify. Our loss is great, but theirs is immeasurably the greater.

Dr. William Stewart, who died at Sleights, Yorkshire, on Sept. 16 at the age of 67, had been in practice in Southampton for over thirty years until he retired two years ago. A native of New Zealand, he graduated M.B., Ch.B. at Edinburgh in 1911. After a period as a hospital resident and a short assistantship in Yorkshire he came to Southampton and settled in general practice there in 1914. During the 1914–18 war he served in the R.A.M.C. at Netley, his general health, which was never robust, precluding him from service overseas. Then followed a period of study at the Central London Throat, Nose, and Ear Hospital, where he became registrar. He then started in specialist practice, and in 1922 took charge of the ear, nose, and throat departments of the Royal South Hants and Southampton Hospital. He resigned this appointment in 1934 and became a consulting surgeon. During this time Dr. Stewart had also acted for various periods as surgeon in charge of the ear, nose, and throat departments at the Royal Isle of Wight County Hospital and at the Southampton Children's Hospital. Professionally he had a keen clinical sense and a particularly clear conception of the essentials of his specialty, qualities which made his teaching of junior colleagues particularly helpful. His opinion was widely sought, and by patients and colleagues alike he was held in high esteem. For many years an active member of the B.M.A., Dr. Stewart was elected president of the Southern Branch in 1931. He also served as president of the Southampton Medical Society, and during the recent war gave invaluable service as chairman of the Southampton Medical War Committee. His death is felt as a personal loss by a large number of old patients and by a wide circle of friends, and their sympathy will be extended to his widow.—N. W. M.

Dr. Alfred Wilson Daniel died on Sept. 17, at the age of 75, some weeks after undergoing an operation. He was educated at Lancing College and Emmanuel College, Cambridge. After taking his M.A., he qualified M.R.C.S., L.R.C.P. as a student of St. Thomas's Hospital in 1898, and graduated M.B., B.Ch. a year later. Soon after qualifying he joined the staff of the South-West Fever Hospital, and while there, in 1902, obtained the M.D. of Cambridge University. The same year he entered the service of the London County Council and joined the staff of Hanwell (now St. Bernards) Mental Hospital, where he spent the rest of his medical career. Having passed successively through the lower grades, he was finally appointed medical superintendent in 1917, and in 1936 he retired. Dr. Daniel was quiet and unassuming in manner and disliked ostentation and display. Under this quiet exterior he was very kind-hearted and generous, and many of his patients, colleagues, and friends have had personal experience of these qualities. At all times he had an unfailing sense of humour of a pawky kind, which never failed to be most apt. In his work his greatest interest always lay with the patients, among whom he spent countless hours, so that he knew them all by name and in most cases remembered some facts of their history, a marvellous feat when dealing with more than 2,500 patients. How often did a medical officer who was in charge of a group of wards find that, when a case was being discussed at the morning conference, his chief knew so much more about the history of the case than he did himself. Dr. Daniel believed that the only way of really learning about mental illness was to spend as much time as possible in the wards with the patients, and the wisdom of this belief was proved by his own great clinical insight and acumen. His unfailing interest in his patients and also in his staff led to his being held by them in great esteem, and his retiring was felt as a great loss by all. Apart from his work he excelled at golf, and for many years was rated scratch. During his retirement he played a daily round as long as his health permitted, and his carefree attitude towards the game made him a delightful opponent as well as a doughty one. In his passing, psychiatry has lost someone who at all times lived up to the highest ideals of this exacting branch of medicine. He is survived by a son and two daughters, and to them the sympathy of his friends and colleagues will be extended.—J. S. H.

Dr. George de Joncourt Patterson, of Lechlade, Gloucestershire, died on Sept. 19 at the age of 91. He had been confined to bed for some months with gradually increasing weakness, but his mental faculties, always acute, were quite undimmed up to the time when he peacefully lost consciousness. He was a B.A. of Dublin and graduated M.B., B.Ch. in 1881, proceeding M.D. in 1902. He made his own way in the profession, and became a family doctor of the best type, respected and liked in his practice at Heckmondwike in Yorkshire. He worked there for thirty-one years, and at Lechlade from 1915 until he retired, still full of energy, in 1932. Midwifery was always Dr. Patterson's strong point. He was ideally suited for it, with his calmness and patience, his natural aptitude, and his training at the Rotunda. He said he liked midwifery because he was so fond of seeing the smiling mother the next day. He saw many smiling faces in his fifty years of work, and not only smiling mothers but all kinds of cheerful faces in his long and happy life. They were mirrors of his own face, which was very seldom clouded with impatience.—H. E. B.

Dr. Jotindranath Ghosh died at the Salford Royal Infirmary on Sept. 24, at the age of 61. Beyond the fact that he is said to have been a Bengali and to have been born at Coal Harbour, Calcutta, on Oct. 16, 1886, nothing is known of his early life. He died without a relative in the world. His medical school was Grant Medical College, Bombay, and he obtained the L.M.S. there in 1910. He appears to have come to Britain immediately afterwards, for he took the D.P.H. in Dublin in 1912 and the F.R.C.S.I. in 1913. During the first world war he was an A.M.O. at Portsmouth for three years, and in 1916 was appointed house-surgeon and later R.S.O. at Salford Royal Hospital. After a period he changed over from surgery, and he served Salford Royal and Hope Hospitals as an anaesthetist efficiently, silently, and kindly until a week or two before his death. In 1926 he was appointed visiting radiologist to Hope Hospital, and combined these duties with his others. Most of us would say that his life had been spoilt by ill-health. It would not have been his own view. Many years ago while giving an anaesthetic his quiet voice inquired of the surgeon if the operation would take much longer. The surgeon, thinking that the patient's condition was giving rise to anxiety, asked why. The reply was, "I shall be the next patient on this table. My gastric ulcer has just perforated." Within an hour it had been operated on. Unhappily, the succeeding years necessitated no fewer than six further major abdominal operations, and it was the last one which led to his death. Yet though he suffered intense pain very frequently no murmur ever passed his lips, and it is doubtful if less intimate colleagues knew he was not

well. Throughout all aspects of his life "Joe" was one of the most retiring and humble of individuals. His home, in which he lived alone, was a treasure-house of books, cut glass, china, postage stamps, and pianos. He admitted—he would never "claim"—that his collection of dictionaries, which formed part of some 6,000 volumes, was superior to that in the Rylands Library. No one knows how many languages he spoke. He was an authority on Sanskrit, and to him high authority appealed for assistance when in doubt. His command of the English language was superb, and though he never made his mark in his profession by any published works, or in the outside world by any public action, to a very wide circle of friends he was invariably spoken of, and to, with love and deference. —W. S.-C.

Universities and Colleges

UNIVERSITY OF ABERDEEN

At a graduation ceremonial held on Sept. 29 the following degrees were conferred:

M.D.—[1]E. K. Cruickshank, [1]C. E. Lumsden, [2]J. A. McC. Smith.

M.B., Ch.B.—[1]E. McKay, [1]W. G. Smith, [2]Catherine C. Budge, [2]Valerie A. Cowie (*née* Field), [2]A. M. C. Duffus, [2]G. P. McNair, [2]Doris I. Manson, [2]Margaret D. Paterson, [2]Margaret P. B. Reid, [2]F. G. G. Shepherd, R. G. Blues, A. J. Booth, G. Bruce, A. R. Burnett, R. F. Cant, G. T. M. Cummins, Wendy J. A. Davie, A. M. Donaldson, I. McI. Duguid, L. Dunbar, A. H. Duncan, G. D. Duncan, J. Duthie, H. W. McG. Edwards, Margaret Farquharson, A. J. B. Gibb, Margaret G. Hay, G. A. Hendry, Margaret R. Inglis, A. G. Jessamine, A. G. Laing, Josephine M. Lomax-Simpson, A. H. Lorimer, A. C. MacDonald, I. A. McIntosh, W. T. D. McKenzie, I. MacLeod, June M. MacTaggart (*née* Davis), P. T. Main, Doreen Meldrum, Irene Milne, Joan M. Milne, J. C. Mitchell, D. Mortimer, T. D. Ness, Norna Pringle, H. G. Richmond, R. S. Ritchie, J. A. Shanks, Elma M. Simpson, Edith M. Skea, R. W. Smith, Elizabeth M. Somerville (*née* Macdonald), Helen M. Soutter, Elizabeth M. Spark, Cecily J. M. Stewart, D. B. Strachan, Gillian R. Struan-Marshall, Audrey Sutherland, J. Symonds, Elizabeth H. Thom, Margaret H. Thomson, J. Wilkie, G. G. Younie.

[1] With honours. [2] With commendation.

UNIVERSITY OF LONDON

John Vivian Dacie, M.B., B.S.(Lond.), has been appointed to the University Readership in Haematology tenable at the Postgraduate Medical School of London as from Oct. 1, 1948.

Sir Henry Dale, O.M., G.B.E., F.R.C.P., F.R.S., has been reappointed a Crown Member of the Court for a further period of five years from Oct. 1.

J. R. Learmonth, C.B.E., F.R.C.S.Ed., regius professor of clinical surgery and professor of surgery in the University of Edinburgh, has been appointed Heath Clark Lecturer for 1949 and has been invited to deliver a course of lectures on "The Contribution of Surgery to Preventive Medicine."

UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated:

M.D.—E. Cope (with distinction), Dorothy D. Jones, J. H. Kahn, S. Lask, H. Lee, S. Madden, R. H. Seville.

Final M.B., Ch.B.—*Part III* (*Medicine, Surgery, Obstetrics and Gynaecology, Therapeutics*): H. Black, Ellen M. Chippindale, J. W. Daggett, M. Dales, R. England, Kathleen Gillen, Roxie Glossop, Edwina E. Green, D. C. Hall, R. T. Heylings, E. Menchovsky, C. H. Morris, Sarah L. S. Phillips, Marjorie Pitman, Elizabeth Pryce-Jones, P. J. Reynolds, P. D. Roberts, Etienne Sandford, C. J. Sharp, Barbara Welburn, A. B. Wharton, J. C. Woodrow, D. P. Wright.

The West Riding Panel Practitioners' Prize has been awarded to J. R. Bowker.

The *London Gazette* has announced the award of the Albert Medal to Arthur Richard Cecil Butson, M.B., B.Chir., a member of the Falkland Islands Dependencies Survey, in recognition of his gallantry. The citation reads as follows: "On the evening of July 26, 1947, an American member of the Ronne Antarctic Research Expedition fell into a crevasse some six miles from Base. Two teams were sent to the rescue but the hazards of crossing a heavily crevassed glacier were much increased by darkness and it was not until 4 o'clock on the morning of July 27 that the crevasse into which the American had fallen was located. Butson immediately volunteered to be lowered into the crevasse, where he found the American tightly wedged 106 ft. down and suffering from shock and exhaustion. For nearly an hour he had to chip the ice away in an extremely confined space in order to free the American, who was brought to the surface and placed inside a tent. Butson then rendered the necessary medical aid and at dawn a return to Base was made carrying the American on one of the sledges."

Medical News

Emergency Reserve Schemes

The Ministry of Labour and National Service has announced the setting up of Emergency Reserve Schemes, the object of which is to enrol volunteers with Service experience who would be urgently needed in the early stages of any emergency. For the time being volunteers will not be accepted from a number of industries or services and from the following groups: (1) State registered nurses and midwives; (2) Student nurses, pupil assistant nurses, and pupil midwives; (3) Medical, dental, veterinary, and pharmaceutical students. Among those persons who can be accepted only provisionally as volunteers are: members of the medical profession, dentists, and veterinary surgeons; enrolled assistant nurses and mental nursing assistants; opticians, pathological laboratory assistants, pharmacists, physiotherapists, and radiographers.

Royal College of Obstetricians and Gynaecologists Dinner

The annual dinner of the Royal College of Obstetricians and Gynaecologists was held at the Dorchester on Friday, Oct. 1. Replying to the Dowager Marchioness of Reading, who proposed the toast of the College, Sir William Gilliatt, the President, referred to the revolutionary changes brought about by the National Health Service Act. The College would be represented on the statutory advisory committee on midwifery and they would continue to press the Minister to maintain the highest level of efficiency in the midwifery services. The toast of the guests was proposed by Dr. V. B. Green-Armytage. Dr. Emil Novak, President of the American Gynecological Society, who earlier in the day had been elected an honorary fellow of the College, handed over to Sir William Gilliatt a gavel which had been made from a door knob in the house at Danville where Ephraim McDowell performed the first ovariotomy on Jane Todd Crawford in 1809. The gavel, which is a replica of that used by the American Gynecological Society, is inscribed "Presented to Royal College of Obstetricians and Gynecologists by the American Gynecological Society, October 1, 1948." Sir Henry Dale, as President of the Royal Society of Medicine, also replied for the guests, and so did Mrs. Finletter and Professor Newell W. Philpott. Professor Philpott paid tribute to the work done in Canada over the last few months by Sir William Fletcher Shaw, work which had led to the setting up of a regional council of the Royal College.

King's College Hospital Medical School Dinner

At the annual dinner of King's College Hospital Medical School, which was held at the Mayfair Hotel on Oct. 2 with Mr. John Everidge presiding, two different points of view were expressed about nationalized medicine. Dr. Macdonald Critchley, proposing the toast of the Medical School, mentioned excessive regimentation and the multiplicity of committees as being serious handicaps to clinical research. Professor Henry Cohen, replying to the toast of the guests proposed by Sir Cecil Wakeley, said he was convinced that it was essential for those in practice to devote some of their time to committee work in order to establish acceptable conditions. Mr. H. C. Edwards, the Dean of the Medical School, referred to the overcrowded syllabus of instruction. He looked forward to the day when it would be said about King's that they had stopped instructing students and had started to educate them. Dr. Wilfred Attenborough proposed the health of the chairman, and in responding Mr. Everidge mentioned some well-known King's men of a past generation and expressed his confidence in the future of the medical school and hospital.

Middlesex Hospital Dinner

The future of the Middlesex Hospital was referred to by Mr. M. H. Whiting at the annual dinner held at the Savoy Hotel on Oct. 1. He said that the hospital, to which he first came in 1907, had wonderful buildings and well-equipped laboratories; in the new era there might well be enough money to keep them in perfect order. A ship and her crew were one, and it was to be hoped that when the ship continued her voyage in strange and uncharted seas the crew would preserve and enhance the fine reputation of the hospital and medical school. Dr. H. E. A. Boldero emphasized the importance for teaching of the hospital's new association with the Woodside Hospital for Functional Nervous Disorders, the Arthur Stanley Institute, and the Hospital for Women, in Soho. He also stressed the advantage of the medical school now having a charter. Dr. R. S. C. Couch, senior Broderip scholar, was glad to see women students in the medical school, and regretted that national service regulations limited the experience of young men in hospital appointments immediately after qualification.

Doctors' Two Duties

Addressing Westminster Medical School at the inauguration of the academic session, Dr. W. J. S. Stallybrass, Vice-Chancellor of Oxford University, said that one result of the Act was that the doctor of public patients now owed two duties—one to the patient and one

to the State. That had a bearing on the old question whether a doctor should tell. He understood that at present registration forms were open to inspection by any member of a regional board, so that it might follow that an employer serving on the regional board could discover information detrimental to any employee. It was of vital importance that the communications made to a doctor should be known to be confidential. Turning to the problem of the expert witness, he asked whether, now that all doctors were paid by the State, it was right that some of them should always appear as witnesses for the prosecution and others for the defence. Would it not be more satisfactory if there were a panel of expert witnesses on subjects like insanity? But the Bench was suspicious of expert witnesses.

Nuffield Medical Fellowships

In the past the Nuffield Foundation has offered medical fellowships each year in four subjects—child health, industrial health, social medicine, and psychiatry. From 1949 the scheme will be widened to include all branches of medicine, though special consideration will still be given to those whose interests lie in the subjects listed. In general the Foundation will award these fellowships to people who wish to qualify for an academic career as teachers and research workers. Applications for awards in 1949 should be received not later than April 1, 1949, by the Secretary, Nuffield Foundation, 12 and 13, Mecklenburgh Square, London, W.C.1.

Princess Tsahai Memorial Hospital Fund

An exhibition of British and Ethiopian children's drawings will be held at Seymour Hall, Seymour Place, London, W.1, on Nov. 8, 2 to 5 p.m., and Nov. 9, 11 a.m. to 5 p.m. The exhibition is promoted by the Princess Tsahai Memorial Hospital Council, and a bazaar on behalf of the hospital fund will be held in the same building. The Memorial Hospital Council will be pleased to receive gifts for the bazaar; they should be addressed to the Bazaar Secretary, 3, Charteris Road, Woodford Green, Essex. Donations to the hospital fund will be gratefully acknowledged by Lord Horder and Lord Amulree, c/o H. Reynolds & Co., 1, Bloomsbury Court, London, W.C.1.

Higher Nurses' Salaries

The Council of the Royal College of Nursing resolved at a meeting held on Sept. 28 that the Functional Whitley Council for Nurses and Midwives be urged to take immediate steps to improve the salaries of trained nursing staff in the National Health Service. It suggests that salaries should be raised by just over £100. Moreover, the nurse's salary should be so calculated as to cover her responsibilities fully, such as the teaching of practical nursing, and compensate her for such features of the nurse's life as spread-over duties and week-end work.

Poor-relief Statistics End

A Government publication which has appeared annually almost without a break for 100 years is now issued for the last time. It is the return which since 1919 has been issued by the Ministry of Health showing the number of persons in receipt of poor-law relief. It has been ended because the poor-law system has been swept away by the National Assistance Act. The final return (H.M.S.O., 9d.) records that the number of men, women, and children in receipt of poor relief in England and Wales at Jan. 1, 1948, was 469,556. This was 7,372 fewer than at the same date a year earlier. The number of children was 137,442. Among the categories of persons were 1,721 casuals, compared with 1,545 a year before. There were also 2,333 orphans (both parents dead), 1,040 of whom were receiving institutional relief. Only 1,585 were receiving relief because of unemployment. When the first return in this series was compiled the number of people receiving poor relief in England and Wales in July, 1848, was 893,743. During the following century the highest total of persons in receipt of poor relief was returned on Jan. 1, 1935, when it reached 1,472,891. Of these, 452,075 persons were receiving relief because of unemployment. On Jan. 1, 1922, 744,797 persons received relief because of unemployment, the highest total for this cause recorded.

Christmas Cards

The Grenfell Association has once again produced a delightful series of Christmas cards depicting the arctic scenery of Labrador and Northern Newfoundland, where it carries out its invaluable medical work. Profits from the sale of these cards help the work to continue among the fishermen and fur traders. Funds are desperately needed, for fish and fur have been scarce for two years, with the result that food and clothing are short and the dogs, on which transport depends in winter, have died. Tuberculosis is reported to be dangerously increasing, and some of the original wooden hospitals which have withstood the arctic storms for over 40 years must be rebuilt. Cards are available in black-and-white or in colour at prices from 9d. to 1s.; packets of six postcards may be bought for 2s., and stamps for philatelists are sold. There is also an illustrated leaflet price 1d. Orders for Christmas cards should be addressed to the Secretary, Grenfell Association, 6, Victoria Street, London, S.W.1, or to Miss Betty Fyfe, Westland, Kilmalcolm, Renfrewshire. The stamps may be obtained from Mrs. D. M. MacKay, 88, Exeter House, Putney Heath, London, S.W.15.

COMING EVENTS

Royal Society of Medicine

Dr. Philip S. Hench, of the Mayo Clinic, will give the Samuel Hyde Lecture before the Section of Physical Medicine of the Royal Society of Medicine, 1, Wimpole Street, London, W., on Wednesday, Oct. 13, at 4.30 p.m. The title of the lecture is "A critical evaluation of current remedies for rheumatoid arthritis." The Officers of the Section extend a cordial invitation to those who are not Fellows of the Society to attend. Admission to non-Fellows will be by ticket only, and application should be made to Dr. Doris Baker, Honorary Secretary of the Section, at 1, Wimpole Street.

Industrial Health Lecture

An address on "An Industrial Health Service" will be given by Dr. E. H. Capel, chief medical officer to the National Coal Board, to the North-west Middlesex Branch of the Socialist Medical Association on Oct. 14 at the Town Hall, Wembley. It will be preceded by a C.O.I. film, "They Live Again," at 7.30 p.m.

University of Leeds

The inaugural lecture of the Faculty of Medicine of the University of Leeds will be given in the Riley-Smith Hall of the University Union on Tuesday, Oct. 12, at 3 p.m., by Professor W. E. Le Gros Clark, F.R.S. His subject is "Intellectual Adventure." Members of the medical profession are invited to be present.

Facilitation of Visual Tasks

The 23rd Ettles Memorial Lecture will be delivered under the auspices of the Association of Optical Practitioners by Mr. H. C. Weston at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Wednesday, Oct. 13, at 7.45 p.m. His subject is "The Facilitation of Visual Tasks, with Special Reference to Near Visual Problems." Admission to the lecture is free, and all those interested are invited to attend.

Society of Medical Officers of Health

At the first ordinary meeting of the Society of Medical Officers of Health for the session 1948–9, on Thursday, Oct. 14, at 5.40 p.m., R. H. Parry, M.D., F.R.C.P., D.P.H., Medical Officer of Health for the City of Bristol and Professor of Preventive Medicine in the University of Bristol, will be installed as president of the society and will deliver his presidential address.

Society of Chemical Industry

A joint meeting of the Nutrition and Microbiological Panels of the Food Group of the Society of Chemical Industry will be held at Gas Industry House (No. 3 Room), 1, Grosvenor Place, London, S.W., on Wednesday, Oct. 13, at 6.15 p.m., when Dr. E. F. Gale will read a paper entitled "The Role of Vitamins and Metals as Co-enzymes in Bacterial Metabolism."

Chelsea Clinical Society

Chelsea Clinical Society will hold the opening meeting of the 1948–9 session at the South Kensington Hotel, 47, Queens Gate Terrace, London, S.W.7, on Oct. 12 at 7 for 7.30 p.m. Discussion on "Empiricism in Medicine" to be opened by Mr. Geoffrey Evans.

National Safety Congress

The public safety sessions of the 1948 National Safety Congress, organized by the Royal Society for the Prevention of Accidents (Terminal House, 52, Grosvenor Gardens, London, S.W.1), will be held at the Central Hall, Westminster, London, S.W., from Tuesday to Friday, Oct. 12 to 15. At the child safety session on Oct. 13 Dr. Charles Hill, Secretary of the British Medical Association, will speak on "The Road Safety of the Young Child," and at the home safety session on Oct. 14 "Home Dangers to the Under Fives" will be discussed by Dr. J. L. Burn. The full programme may be obtained from the secretary of the society at the above address.

American Group Therapy Association

The sixth Annual Conference of the American Group Therapy Association will be held on Jan. 21 and 22, 1949, at the Einhorn Auditorium, Lenox Hill Hospital, New York. One session of the conference will be on analysis of the nature of leadership in ordinary groups and therapy groups. Dr. S. H. Foulkes (England) will deliver one of the main papers in this symposium. The topic of another session is "Contemporary Research in Group Psychotherapy." The Association's address is 228, East 19th Street, New York 3, New York.

SOCIETIES AND LECTURES

Monday

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W.—Oct. 11, 8 p.m. Annual general meeting; 8.30 p.m., *"Thyrotoxicosis,"* Presidential address by Dr. T. Jenner Hoskin.

Tuesday

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—Oct. 12, 5 p.m. *"Histology of the Skin,"* by Dr. I. Muende.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—At Royal Free Hospital School of Medicine, 8, Hunter Street, Brunswick Square, W.C., Oct. 12, 8.15 p.m. Annual general meeting.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—Oct. 12, 5 p.m. Croonian Lecture: *"Prefrontal Leucotomy,"* by Dr. R. D. Curran.

Wednesday

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY.—Oct. 13, 8 p.m. *"Experimental Corneal Grafting,"* by Dr. Paul Bacsich.

INSTITUTE OF LARYNGOLOGY AND OTOLOGY, 330-2, Gray's Inn Road, London, W.C.—Oct. 13, 10 a.m. *"The Treatment of Cardiospasm,"* by Mr. J. D. McLaggan.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—Oct. 13, 3.30 p.m. *"Modern Trends in the Weaning and Mixed Feeding of the Infant,"* by Dr. W. G. Wyllie.

ROYAL SANITARY INSTITUTE, 90, Buckingham Palace Road, London, S.W.—Oct. 13, 2.30 p.m. *"The Control of Milk Quality,"* by Mr. E. B. Anderson and Mr. L. J. Meanwell.

WEST LONDON HOSPITAL, Hammersmith Road, W.—Oct. 13, 11.45 a.m. *"Psychogenic Rheumatism,"* lecture by Dr. Philip Hench, Associate Professor, Mayo Clinic, Rochester, Minn., U.S.A., followed by Dr. Spencer Paterson.

Thursday

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—Oct. 14, 5 p.m. *"Erythematosquamous Eruptions,"* by Dr. H. J. Wallace.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—Oct. 14, 5 p.m. Croonian Lecture: *"Prefrontal Leucotomy,"* by Dr. R. D. Curran.

BRITISH INSTITUTE OF RADIOLOGY, 32, Welbeck Street, London, W.—Oct. 14, 8 p.m. *"Carcinoma of the Buccal Cavity."* Discussion to be opened by Sir Stanford Cade, Dr. J. L. Dobbie, and Mr. W. D. Harmer.

Friday

FACULTY OF RADIOLOGISTS: THERAPY SECTION.—At Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C., Oct. 15, 2.15 p.m. *"Palliative Treatment in Advanced Breast Cancer."* Discussion to be opened by Mr. A. J. Durden-Smith, Dr. J. R. Nuttall, and Mr. G. W. Blomfield.

ROYAL INSTITUTE OF PHILOSOPHY.—At University Hall, 14, Gordon Square, London, W.C., Oct. 15, 5.15 p.m. *"Morality and Nature,"* by W. D. Falk, M.A.

APPOINTMENTS

DURAND, R. W., M.R.C.S., L.R.C.P., Superintendent, Belfast City Hospital.

FRENCH, ALISTAIR R., M.R.C.S., L.R.C.P., Secretary, Medical Protection Society, Ltd., Victory House, Leicester Square, London, W.C.2.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Bradley.—On Oct. 1, 1948, to Fanny Morrow Bright, M.A., wife of Dr. Arthur A. Bradley, 10, Howard House, Dolphin Square, Westminster, S.W.1, twins—a boy and a girl.

Cox.—On Sept. 25, 1948, at Nuffield House, Guy's Hospital, to Betty (née Padbury), wife of Dr. A. G. C. Cox, a brother for Christopher—Charles Antony.

Merry.—On July 15, 1948, at Point-à-Pierre Hospital, Trinidad, B.W.I., to Kathleen, wife of Dr. C. H. Merry, a son.

Rollason.—On Sept. 27, 1948, at the Scunthorpe Maternity Home, to Margaret (née Rowbotham), wife of Dr. W. N. Rollason, a second son—John David.

Scurr.—On Sept. 24, 1948, at Westminster Hospital, to Jean (née Spiller), wife of Dr. Cyril Scurr, a daughter—Judith Ann.

Turner.—On Oct. 1, 1948, in Edinburgh, to Paula, wife of Dr. Richard Duke Turner, a son and a daughter.

Venning.—On Sept. 25, 1948, at Hammersmith Hospital, to Dr. Ruth Venning, wife of Dr. G. R. Venning, of 153, Fairfax Road, Teddington, twin son and daughter.

MARRIAGES

Ingram—Forbes Irving.—On Sept 25, 1948, at the English Church, Montana, Switzerland, George Ilsley Charlton Ingram, M.R.C.P., son of Mr. and Mrs. G. S. Ingram, of the Church Missionary Society, Etmadpur, India, to Patricia Margaret Forbes Irving, second daughter of the late Roy Forbes Irving, M.Inst.C.E., and of Mrs. Forbes Irving, of 17, Church Street, Tewkesbury, Gloucestershire.

Pack—Stanton.—On Sept. 4, 1948, at Alphington, near Exeter, Devon, Gordon James Pack, M.B., B.S., of Great Bookham, Surrey, to Dorothy Mary Stanton, M.B., B.S., of Exeter.

DEATHS

McCallum.—On Sept. 16, 1948, at 20, Thornfield Road, Middlesbrough, Charles Cowan McCallum, F.R.C.S.Ed., aged 50.

Ord.—On Sept. 9, 1948, Frederic William Ord, L.R.C.P.I. and L.M., of The Vicarage, Hayfield, near Stockport, aged 87.

Russell.—On Sept. 11, 1948, at Pretoria, Transvaal, William Russell, M.C., M.D., Commissioner in Mental Hygiene for the Union of South Africa.

No. 38

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 18.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	26	2	11	—	—	35	6	17	3	—
Deaths		—	—				—	—		
Diphtheria	126	12	34	6	2	189	13	50	6	8
Deaths	3	2	1	—	—	2	—	—	—	—
Dysentery	50	5	39	—	—	100	18	25	1	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	3	—	—	—	—
Deaths		—								
Erysipelas			35	6	3			32	7	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				58					92	
Deaths	36	3	6	2	1	82	4	30	9	6
Measles*	2,614	83	45	11	39	1,066	48	53	84	2
Deaths†			—	—	—	2	—	—	1	—
Ophthalmia neonatorum	47	9	14	—	—	55	6	4	—	—
Deaths										
Paratyphoid fever	17	2	—	—	—	23	2	6 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	283	9	3	2	4	252	8	—	3	1
Deaths (from influenza)‡	4	1	—	—	—	1	—	—	—	—
Pneumonia, primary			136	16				141	20	
Deaths	108	10		5	3		12		5	7
Polio-encephalitis, acute	2	—				23	1			
Deaths							—			
Poliomyelitis, acute	72	6	2	2	—	571	53	148	11	10
Deaths§	4	—					—			
Puerperal fever		—	17		—		—	10		—
Deaths										
Puerperal pyrexia‖	101	9	4	—	—	115	8	8	1	1
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	925	62	220	91	49	805	57	142	21	44
Deaths†			1	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	28	—	5	2	—	16	4	4	3	2
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	2,635	166	68	49	10	1,378	131	38	51	6
Deaths	12	2	—	1	—	9	—	1	1	1
Deaths (0–1 year)	268	33	37	14	8	348	29	67	23	15
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,860	601	506	159	95	3,721	579	517	147	114
Annual death rate (per 1,000 persons living)			10·2	9·9				10·7	9·3	
Live births	7,332	1194	882	427	212	8,350	1395	960	452	253
Annual rate per 1,000 persons living			17·8	26·7				19·3	28·5	
Stillbirths	203	24	29			209	23	32		
Rate per 1,000 total births (including stillborn)			32					32		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

June Quarter, 1948

The latest quarterly return, issued on Oct. 7, contains some further vital statistics for the years 1946 and 1947. The general mortality ratio (the ratio of mortality from all causes to that of the previous year) for 1947 is given as 1.028 compared with 0.987 in 1946. The infant mortality rate for the year 1947 was 41 per 1,000 related live births against 43 in 1946. This is the lowest rate of deaths of children under one year of age ever recorded for a complete year in this country, although the provisional rate for the June quarter of 1948 was 31, which is the lowest for any quarter recorded in this country.

The number of civilian deaths from diphtheria continued to fall in 1947, there being only 242 compared with 455 in 1946 and 1,348 in 1943. This was the lowest number ever recorded in England and Wales. Civilian deaths from influenza numbered 3,303 in 1947, compared with 2,669 and 5,272 in the two preceding years and 12,576 in 1943. Deaths from influenza in the second quarter of 1948 (provisional total excluding non-civilians) numbered only 204.

The prevalence of acute poliomyelitis and polio-encephalitis during 1947 resulted in 688 civilian deaths (407 males and 281 females) compared with 116 and 126 in 1946 and 1945, respectively. Deaths from these causes in the second quarter of 1948 (provisional total excluding non-civilians) numbered 27 compared with 40, 429, 196, and 82 in the four preceding quarters.

There were 31,469 civilian deaths from bronchitis and 22,659 from pneumonia during 1947, which was more than for any year since 1943, when the corresponding figures were 31,386 and 24,638 respectively.

Discussion of Table

In *England and Wales* there were decreases in the notifications of whooping-cough 242, dysentery 34, and paratyphoid 15; the only increase was in the incidence of scarlet fever 92.

The rise in the notifications of scarlet fever was due to small increases throughout the northern section of the country; in the southern section no change occurred. A small fall in the notifications of measles was recorded in most areas; the only exceptions of note were rises in Yorkshire West Riding 97 and Cumberland 99. The rise in the latter county was due to outbreaks in Maryport U.D. 83 and Cockermouth R.D. 25.

The largest falls in the incidence of whooping-cough were London 63, Middlesex 58, and Lancashire 59; the largest rise was Yorkshire West Riding 67. A decrease of 8 in the notifications of diphtheria in Lancashire was the chief feature of the returns of this disease.

A further 16 cases of typhoid fever were notified from the outbreak in Shropshire, Oswestry R.D. An outbreak of dysentery affecting 11 persons was notified from Somerset, Taunton M.B., and this was the largest centre of infection during the week.

There was no change in the number of notifications of acute poliomyelitis; the largest returns were Lancashire 7, London 6, Gloucestershire 5, Glamorganshire 5, Norfolk 5, Warwickshire 5, Essex 5, Buckinghamshire 4, Cheshire 4, and Middlesex 4.

In *Scotland* decreases occurred in the notifications of whooping-cough 42, diphtheria 26, and dysentery 14, and a rise of 23 was recorded for scarlet fever. The increase in scarlet fever was due to a rise in the western area; all counties in this area had an increased incidence except Lanarkshire, where the notifications decreased by 16.

In *Eire* increases were recorded for scarlet fever 36 and diarrhoea and enteritis 12, while decreases were reported for measles 17 and whooping-cough 9. An increase in the incidence of scarlet fever occurred in most areas, and in Dublin C.B. the notifications were 15 more than in the preceding week. The incidence of diarrhoea and enteritis in Dublin C.B. remained unchanged.

In *Northern Ireland* an increase of 20 in the notifications of scarlet fever was the chief feature of the returns. There was a small rise in the notifications of scarlet fever throughout the country.

Week Ending September 25

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,068, whooping-cough 2,259, diphtheria 125, measles 2,703, acute pneumonia 277, cerebrospinal fever 26, acute poliomyelitis 70, dysentery 68, paratyphoid 15, and typhoid 29.

The Ministry of Health has announced that persons who are incapable of work by reason of mental disablement must be registered for National Insurance and pay contributions as non-employed persons. The only exceptions are children under the age of 15, men over the age of 65, and women over the age of 60.

Any Questions?

Treatment of "Tennis Elbow"

Q.—*What is the latest treatment for "tennis elbow"? I have been plagued with this condition for about six months, and it is steadily getting worse. In its earliest stages I thought I had mildly bruised the external condyle; now I can scarcely lift a small book. X rays reveal no abnormality in or round the joint. No focus of infection can be found. Manipulations by an orthopaedic surgeon produced no results; the same applies to ultra-short-wave therapy and massage, pressure bandaging, and simply leaving it alone.*

A.—Many forms of treatment are in common use for the relief of "tennis elbow." No single one of them, except operation, can be relied upon to produce rapid relief in a given case. It is usual to start with the simplest measures, such as short-wave diathermy, deep massage, and faradism to the extensor muscles of the forearm. If these are unsuccessful the injection of a solution of local analgesic into the exact site of the tenderness may occasionally give dramatic results. It is worth while repeating the injection if the first is incompletely successful. If this also fails the effect of immobilization in plaster should be tried. The plaster should extend from the upper arm to the metacarpal heads and should hold the elbow at 90 degrees. The immobilization should be maintained for six to eight weeks. It is successful in a fair proportion of cases. Manipulation under anaesthesia (local or general) is also worth a trial in obstinate cases.

As a last resort operative treatment may have to be considered, but as "tennis elbow" will almost invariably resolve spontaneously if given sufficient time (often twelve months or more) operation should not be advised unless the condition is severe enough to cause significant incapacity. The operation consists in raising the humeral origin of the forearm extensor muscles from the bone and displacing it downwards. This is the most certain way of relieving the symptoms within a reasonable time, and in some cases it will be advised in preference to the more time-consuming conservative methods simply on economic grounds.

Squatting in Congenital Heart Disease

Q.—*What are the mechanics of "squatting"? This position is adopted not only by young patients with congenital heart disease but also by patients with congestive heart failure from rheumatic carditis and from bronchial asthma. These patients may be seen in hospital in bed with knees up and body and head forward, the elbow being on the bed-table, the resulting position being very nearly the same as the "squat."*

A.—No explanation has been put forward to account for the squatting position in congenital heart disease. It is possible that in the squatting position the pressure of the thighs on the abdomen and its contents increases the venous return to the heart and so increases the cardiac output. This temporarily improves the oxygen supply to the body tissues, the blood oxygen saturation remaining the same. In the case of asthma and congestive failure from rheumatic heart disease, the essential point is the elbows being on the bed-table. This fixes the head of the humerus, near which the pectoralis muscles and latissimus dorsi are inserted. This then becomes the origin of these muscles, which are used as accessory muscles of respiration in an attempt further to expand the thoracic cavity. The knees are drawn up automatically in sitting forward on the bed-table.

Stable Solution of Calcium Gluconate

Q.—*What is the most reliable method of preparing stable solutions of calcium gluconate (10% and 20%) for injection purposes? What are the stabilizers generally used and in what concentration? Of late calcium laevulinate is becoming popular—how is it manufactured?*

A.—The *British Pharmacopoeia* solution of calcium gluconate for injection is a supersaturated solution of 10% pure calcium gluconate prepared by dissolving it in the *B.P.* water for injection with the aid of heat and clarifying the hot solution by passing through a suitable filter. While still hot the solution is distributed into carefully washed ampoules, which are then

sealed and sterilized by heating in an autoclave. The actual solubility of calcium gluconate at 25° C. is only just over 1 part in 30 parts of water, although it is soluble to the extent of about 20% in boiling water. The difficulty, therefore, is to prevent the solution from crystallizing at ordinary temperatures, and that is the reason for specifying "carefully washed ampoules," as the presence of any solid particles is almost certain to cause crystallization: it has been shown that even a slight roughness on the glass in the interior of the ampoule is sufficient to cause separation. When this occurs the solution must not, of course, be used for injection. It is doubtful whether a 20% solution of pure calcium gluconate could be prepared and stored satisfactorily, but a somewhat equivalent preparation can be made by using different combinations of calcium with gluconic acid. One proprietary preparation which is available as a 20% solution is composed of the much more readily soluble salt calcium glucono-galacto-gluconate, while other proprietary preparations contain combinations of calcium with various degradation products of glucose. As already stated, however, the official preparation is a 10% solution of pure calcium gluconate.

Calcium laevulinate has the advantage of containing about a 50% higher proportion of calcium in the molecule than does the gluconate, and it is also freely soluble in water; but, although it became popular at one time, it does not appear to have maintained its popularity. It is, however, available in 10%, 15%, and 20% concentrations.

Both of these salts may be prepared by the neutralization of their respective acids with calcium carbonate and subsequent evaporation of the solution to dryness, when they appear as white crystalline or granular powders.

Excessive Saliva

Q.—*Since I had all my teeth extracted a few years ago and replaced by dentures (which are a good fit) I have experienced excessive salivation, with the result that in conversation I cause embarrassment to people on account of spitting. Is there any cure for this unfortunate habit?*

A.—It is of course a well-known fact that any foreign body in the mouth causes a tendency to salivation. Usually, however, with dentures, provided they are a good fit, this tendency gradually diminishes as the wearer becomes more used to them. Occasionally repositioning of the teeth is beneficial, particularly if the anteriors are too far forward or back, which may give a feeling of unaccustomed space or constriction to the tongue. Equally, slight lessening of the flanges of the dentures where these are on the bulky side may produce some amelioration.

Behcet's Syndrome

Q.—*Is there a satisfactory treatment for Behcet's syndrome—i.e., chronic iridocyclitis, ulcerative stomatitis, etc.? I have been suffering from this condition for the past year and the following treatment has not produced any improvement: elimination of septic foci; extraction of most of my teeth; tonsillectomy; appendicectomy; vitamin therapy; sulphonamides; penicillin; autogenous vaccines, etc. I should be grateful for any helpful suggestions.*

A.—The aetiology of Behcet's syndrome is unknown. It is generally regarded as a virus infection, though no virus has been isolated. Treatment is therefore purely symptomatic, and consists of little more than atropine for the iridocyclitis, possibly supplemented by heat in the form of short-wave diathermy. Treatment for the ulcerative stomatitis and the other lesions is also symptomatic.

Early Stages of Disseminated Sclerosis

Q.—*Would you kindly let me know what might be done for a young married woman—aged 29, no children—in the fairly early stages of disseminated sclerosis? Are N.A.B. and nicotinic acid of value, and, if so, in what doses?*

A.—There is still no method of limiting the natural course of disseminated sclerosis. The use of such substances as arsenic and the vitamins has been entirely empirical, and there has been nothing to suggest that improvement of the patient is dependent upon anything more than the natural remissions which are characteristic of the disease. Recent work on the use of anticoagulants in America, based upon the fact that the plaques of sclerosis are due to venous thrombosis, has not been more convincing than treatment with other substances. Relapse in the disease is more likely to occur in periods of ill-health and exhaustion, and sometimes coincides with pregnancy. During the relapse the patient should be rested, but as soon as the acute phase is over she should become active again and should be given intensive re-educational exercises, which will greatly improve any motor disability. It is well, for the patient's sake, to give regular medical treatment, but the physician should realize that in doing so he is not actually modifying the pattern of the illness.

Sterilization of Electric Dry Shaver

Q.—*What is the best way to sterilize the shaving-head of an electric dry shaver which is used in preparing patients for operation? I am told that the only part of the shaver which comes in contact with the skin is the shaving-head itself; the cutter assembly which shields this makes contact only with the hairs and not with the skin.*

A.—If the shaving-head or other part of the instrument which it is desired to sterilize is detachable, and constructed entirely of steel, it is best sterilized by dry heat (hot-air oven at 160° C. for one hour). Instruments not detachable from their electrical connexions and therefore including elements, such as rubber used for insulation, which cannot be heated can be sterilized only with formaldehyde vapour.

NOTES AND COMMENTS

International Congress of Ophthalmology.—The Honorary Secretary of the Ophthalmological Society of the United Kingdom writes: A list of doctors practising ophthalmology in Great Britain is being compiled in connexion with the forthcoming International Congress of Ophthalmology. Will all those who are not already members of the Faculty of Ophthalmologists or the Ophthalmological Society of the United Kingdom kindly submit their names, qualifications, and addresses to the Honorary Secretary, Ophthalmological Society of the United Kingdom, 45, Lincoln's Inn Fields, London, W.C.2?

Lupus Vulgaris and Pregnancy.—Dr. C. J. Stewart (Isleworth, Middlesex) writes: In your answer ("Any Questions?" Sept. 25, p. 628) to the question on the treatment of lupus vulgaris with large doses of calciferol in a pregnant woman no comment is made upon the possible toxic effects upon the foetus. It is quite possible that irrevocable damage could be done which could not be determined until after delivery. As little harm would result from delay, why not leave treatment of the skin lesion until after delivery? Alternatively, would it not be possible to treat the lesion with local applications of calciferol? So far I have had the opportunity of treating two patients in this way. Both had been treated for phthisis and their lesions controlled by local "collapse therapy." The skin lesion in one was a typical lupus vulgaris of thirteen years' standing and had had little previous treatment; the second was a patient with lupus verrucosus of the dorsum of a finger of some seven years' duration. An ointment made up of an oily solution of calciferol, 50,000 units in one ounce of lanoline base, was well rubbed in night and morning. Little change was noticed during the first week, but about ten days after the start of treatment the patient complained of local pain and the affected area became indurated. In both patients the inunctions were stopped at this stage. The pain persisted and small, raised, deeply pigmented areas appeared on the skin. As the induration subsided, firmly adherent scars formed which finally separated three weeks after the start of treatment, leaving normal but slightly pigmented skin. Resolution was complete in the patient with lupus verrucosus, but a few "apple jelly" nodules remained in the patient with lupus vulgaris. These finally cleared on a second course of treatment. I am not very familiar with the literature on dermatology, but have not heard or read of calciferol being used locally, neither have dermatologists to whom I have mentioned these two cases. Lastly I would like to suggest that search should be made for other active tuberculous lesions, particularly in the lungs.

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